DOCUMENT RESUME

ED 290 623	SE 048 854

AUTHOR	Lane, Melissa J.
TITLE	Profiles--Mechanical Engineering: Human Resources and Funding. Special Report. Surveys of Science Resources Series.
INSTITUTION	National Science Foundation, Washington, D.C. Div. of Science Resources Studies.
REPORT NO	NSF-87-309
PUB DATE	87
NOTE	331p.
AVAILABLE FROM	National Science Foundation, 1800 G Street, Room 414, Washington, DC 20550 (single copies free while supply lasts).
PUB TYPE	Reports - Research/Technical (143) -- Statistical Data (110)
EDRS PRICE	MF01/PC14 Plus Postage.
DESCRIPTORS	College Science; Demography; Doctoral Degrees; *Employment Level; Employment Patterns; *Engineering Education; Engineers; *Federal Aid; Graduate Study; Higher Education; *National Surveys; *School Business Relationship; Science and Society; Science Curriculum; Science Education; Undergraduate Study
IDENTIFIERS	*Mechanical Engineering; National Science Foundation

ABSTRACT

This report was developed by the National Science Foundation to focus attention on a particular field of engineering. It addresses the human resources and funding for mechanical engineering programs through several perspectives. The first major section, "Personnel," discusses employment levels and trends, salaries, sectors of employment, jobs in private industry, primary work activities, demographic characteristics, labor market indicators, and mechanical engineers with doctorates. The second section, "Education Pipeline," relates to undergraduate enrollment, earned degrees, graduate enrollment, and characteristics of recent degree recipients. The final section, "Funding," discusses federal funding, industry, and colleges and universities. The appendices identify and briefly describe the programs of the Division of Science Resources Studies and their major data collection efforts that have contributed to this report. (TW)

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human resources and funding

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Suggested Citation

National Science Foundation, *Profiles—Mechanical Engineering: Human Resources and Funding* (NSF 87-310)(Washington, D.C., 1987).

foreword

This Profiles report is the second in a new series of publications developed by the Division of Science Resources Studies (SRS) to focus attention on particular fields of science and engineering. The Profiles series is designed to better serve our various user communities by providing current and historical information on personnel, education, and funding for a specific field in one volume.

This report series is designed to complement other SRS publications which generally focus either on a particular aspect of science and technology, such as Federal funding, or on a particular sector, such as industry.

These reports feature information from regularly recurring SRS surveys. We plan to update the Profiles series at least once every two years. We welcome any comments or suggestions on the Profiles series.

William L. Stewart
Director, Division of
Science Resources Studies

July 1987

acknowledgments

This report was developed within the Division of Science Resources Studies, Surveys and Analysis Section, by Melissa J. Lane, Economist, Scientific and Technical Personnel Characteristics Studies Group (STPCSG), under the direction of Michael F. Crowley, Study Director, STPCSG. Guidance and supervision were provided by Charles H. Dickens, Head, Surveys and Analysis Section, and William L. Stewart, Director, Division of Science Resources Studies. Data used in the report were supplied by many groups within the Division.

contents

Page
I. Overview 1
II. Personnel 5
  Employment Levels and Trends 7
  Salaries 9
  Sector of Employment 10
  Jobs in Private Industry 11
  Primary Work Activities 12
  Demographic Characteristics 15
  Labor Market Indicators 20
  Mechanical Engineers with Doctorates 21
III. Education Pipeline 27
  Undergraduate Enrollment 29
  Earned Degrees 30
  Graduate Enrollment 34
  Characteristics of Recent-Degree Recipients 37
IV. Funding 41
  Federal Funds 43
  Industry 45
  Universities and Colleges 46

Appendixes:

  A. Technical Notes 49
  B. Statistical Tables 53

8

i. overview

Mechanical engineers represented one-fifth (514,000) of the Nation's engineering work force in 1986.[1] Employment in this field has risen since 1976 at an annual rate of 6 percent, about the same as the rate for the engineering work force overall, but slower than those noted for such major fields as chemical, civil, aeronautical, and electrical engineering.

Almost 9 of 10 mechanical engineers were employed in the industrial sector in 1986. Over the decade, however, growth in this sector rose at a slower annual rate than that reported in educational institutions.

Within private industry, mechanical engineers were more likely to work in the manufacturing (66 percent) than the nonmanufacturing sector (34 percent). Within the manufacturing sector, they were concentrated in four industries: fabricated metals, machinery, electrical equipment, and transportation equipment.

Very few women and minorities become mechanical engineers. In 1986, women, blacks, and Hispanics represented less than 3 percent each of employed mechanical engineers; Asians accounted for 6 percent. The average annual rates of employment increase experienced by women (19 percent), blacks (10 percent), and Asians (12 percent) have risen much faster since 1976 than comparable rates for men (6 percent) and whites (6 percent).

Mechanical engineers seeking employment have little trouble finding jobs. Their unemployment rate in 1986 was only 1.5 percent; this rate is about the same rate experienced by all engineers combined (1.3 percent). Additionally, among those who find jobs, very few are underemployed, i.e., involuntarily working in jobs outside of science and engineering or involuntarily working part time.

These favorable market conditions are also evident among recent graduates. Almost 85 percent of individuals who received their bachelor's degrees in mechanical engineering in 1982 and 1983 were working in their field of study in 1984; for all engineers combined, this proportion was 80 percent. Further, a large fraction of the remaining 15 percent of mechanical engineering graduates were in either mathematics or computer science.

Increases in Federal funding obligations for basic research in mechanical engineering have outpaced growth for overall engineering obligations during the 1976-86 decade. Funding obligations for applied research in mechanical engineering, however, have lagged behind those for total engineering. The Department of Defense accounted for the largest share of funding for both basic and applied research in mechanical engineering in fiscal year (FY) 1986.

Annual rates of increase in mechanical engineering degree production and graduate enrollment over the last decade were greater than those reported for engineering overall. Although shortages have been reported for some fields of engineering, such as electrical and electronics engineering, there were no reported shortages for mechanical engineering.[2]

Employment projections for mechanical engineers through the midnineties show increases in this field slightly lower than engineering overall but higher than other fields such as chemical, civil, and industrial engineering.[3] The Bureau of Labor Statistics projects increases in employment of mechanical engineers ranging from 28 percent to 39 percent (depending on assumptions) between 1984 and 1995. For all engineers, these increases are projected to range from 30 percent to 41 percent.

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[1] Data on the engineering work force in 1986 are preliminary.

[2] Market Facts, Inc., *1985 NSF Science and Engineering Labor Market Study* (prepared for the National Science Foundation under Contract # SRS 84-12379), April 1986.

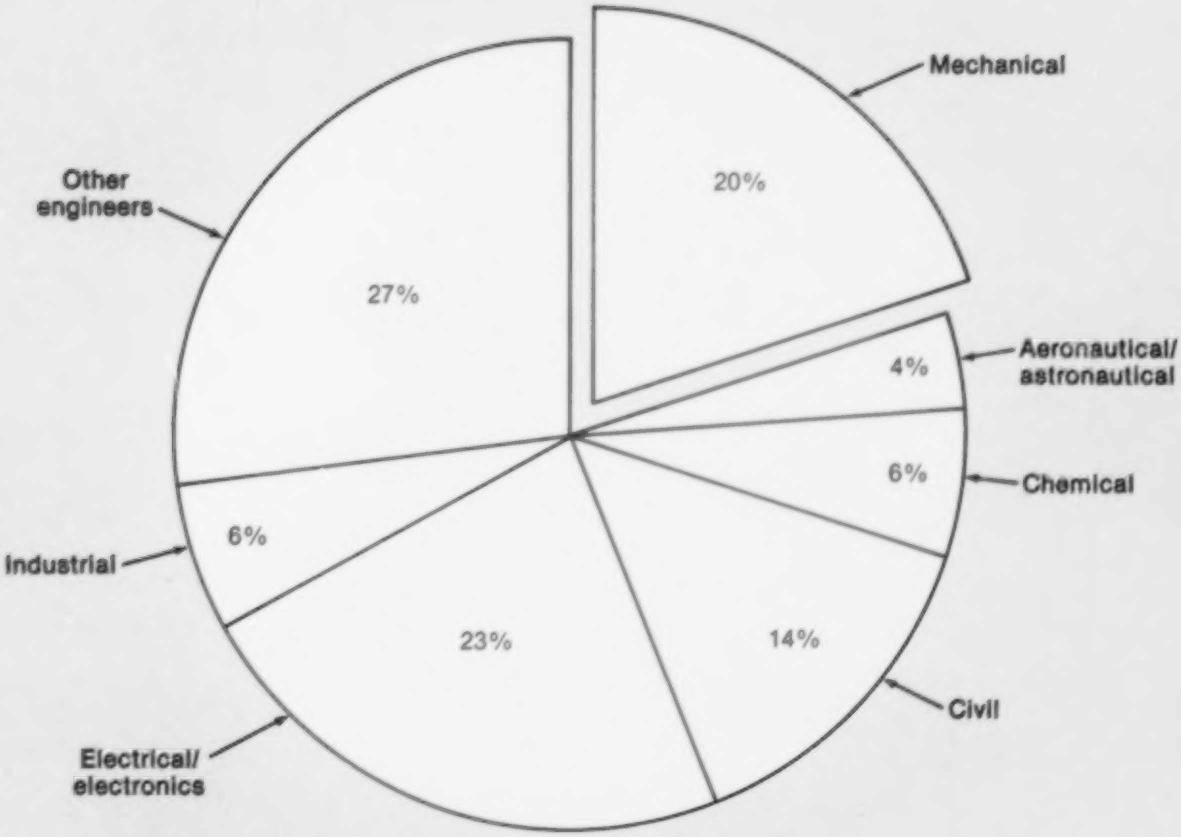
[3] Betty W. Su, *The Economic Outlook to 1995: New Assumptions and Projections*, Office of Economic Growth and Employment Projections, Bureau of Labor Statistics, 1985.

ii. personnel

employment levels and trends

Employed engineers by field: 1986

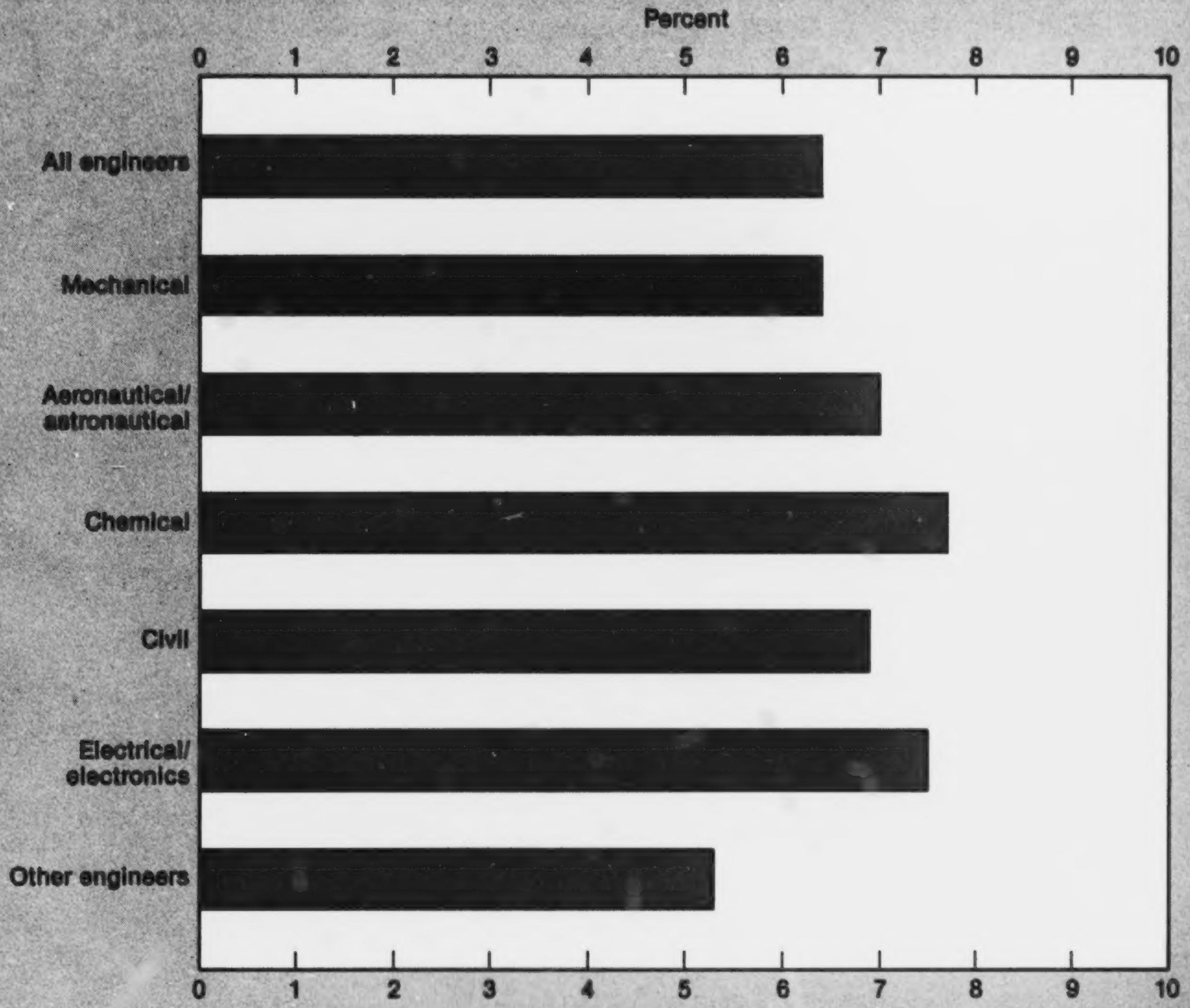
Total = 2,560,600



SOURCE: National Science Foundation, SRS; based on appendix table 1

- Almost 514,000 mechanical engineers were employed in 1986 representing 20 percent of total engineering employment in the United States. Only electrical/electronics engineers (23 percent) accounted for a larger share of the engineering work force.

Average annual employment growth rates by engineering field: 1976-86

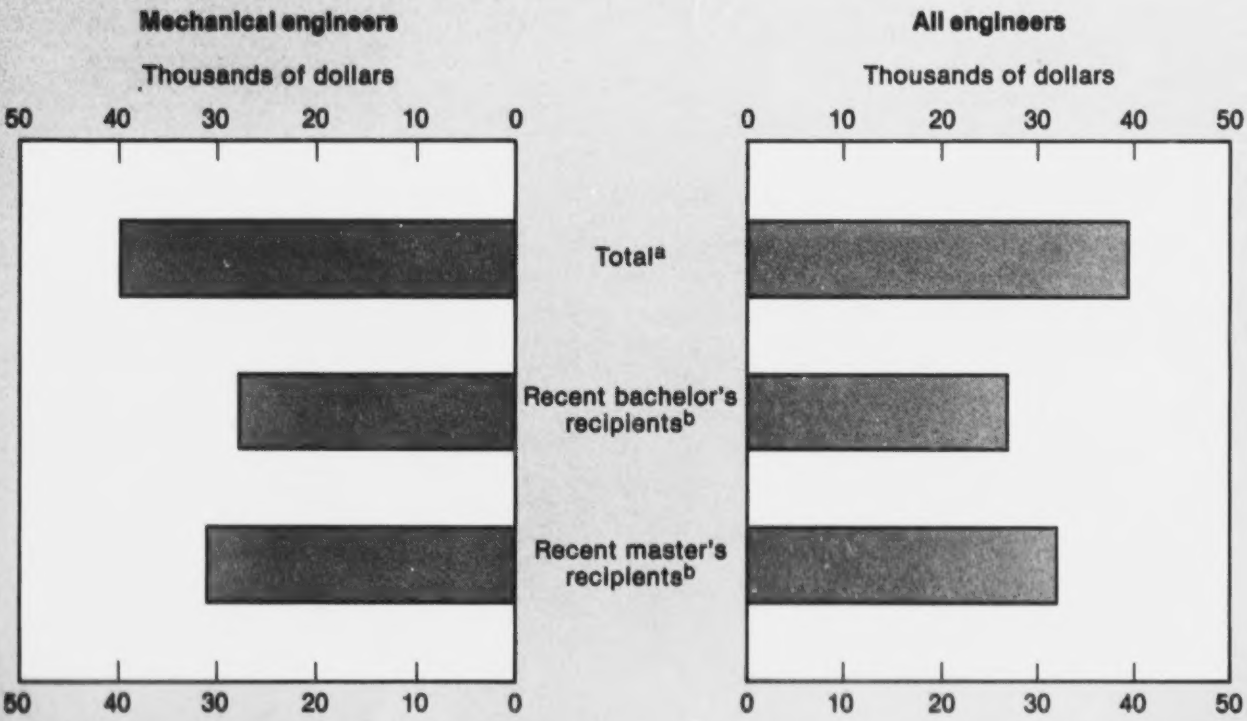


NOTE: Engineering data for 1976 are not available at any further disaggregation.
SOURCE: National Science Foundation, SRS; based on appendix table 1

- During the 1976-1986 decade, employment of mechanical engineers increased at an annual rate of 6.4 percent, about the same as the rate for all engineers combined. This rate was lower, however, than comparable annual rates for other fields such as chemical and electrical engineering (8 percent each).

salaries

Average annual salaries by degree level



[a] Overall salaries in 1984.

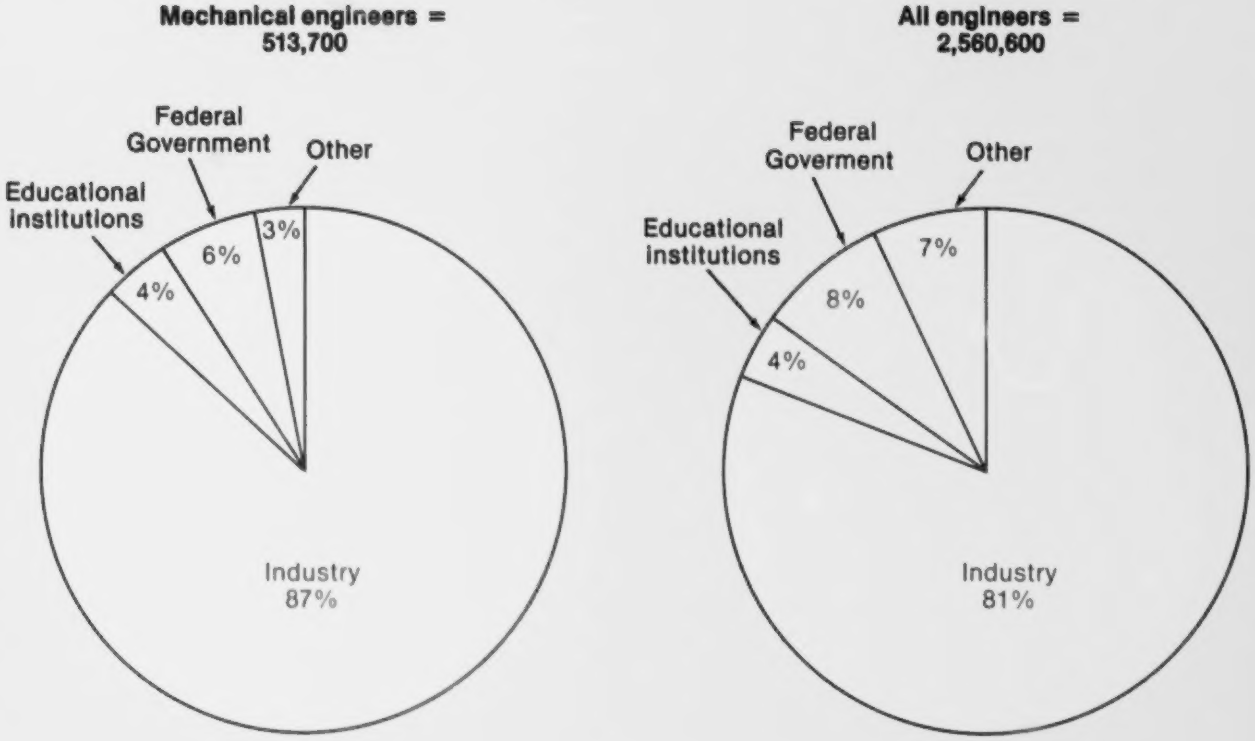
[b] 1982 and 1983 recipients in 1984.

SOURCE: National Science Foundation, SRS; based on appendix tables 21 and 23

- Salaries for engineers show some variation by field. In 1984 (the most recent year for which data are available), mechanical engineers reported average annual salaries of about $40,000. For all engineers, the average was about $39,600. Among major engineering fields, only civil, industrial, and mining engineers reported salaries below those for mechanical engineers.
- Annual salaries of mechanical engineers were about average for recent graduates with engineering degrees. Mechanical engineers who received baccalaureates in 1982 and 1983, for example, earned annual salaries of $27,200 in 1984 compared to an average of $27,000 for all engineering degree-holders. Comparable salaries at the master's level were $32,000 for each cohort.

sector of employment

Sector of employment: 1986

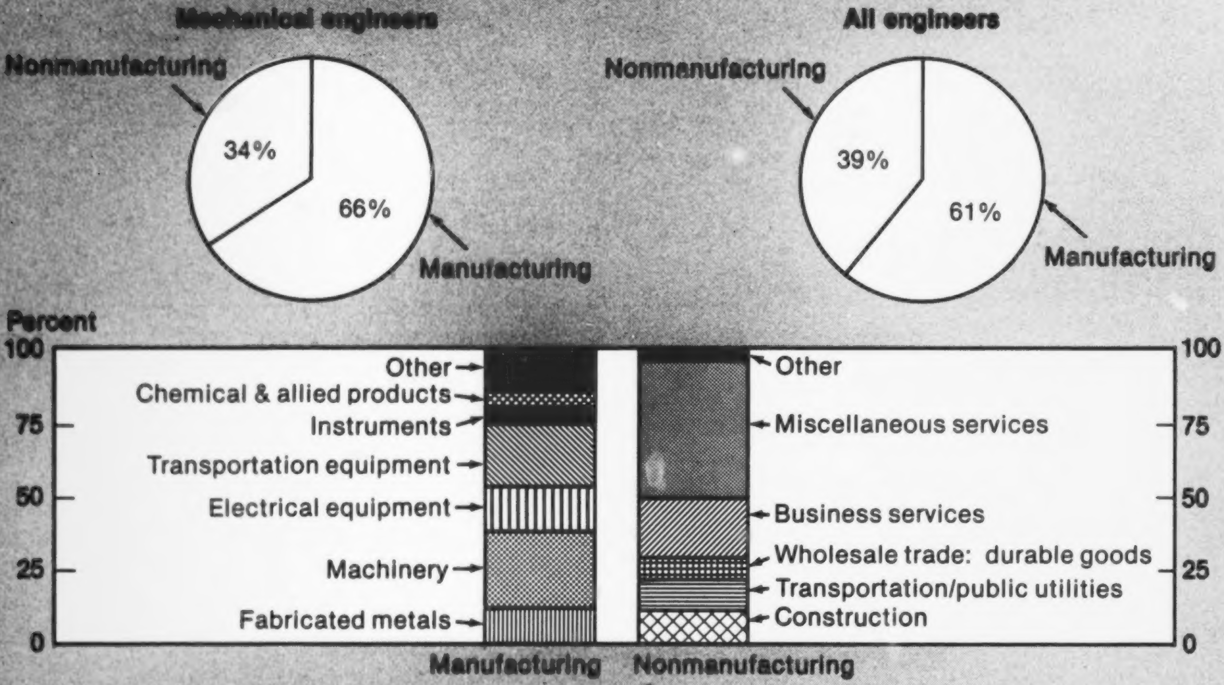


SOURCE: National Science Foundation, SRS; based on appendix table 9

- Mechanical engineers are more heavily concentrated in the industrial sector than all engineers combined. Industry employed 87 percent of mechanical engineers in 1986 compared to 81 percent of all engineers. This sector, however, has not been the fastest growing for mechanical engineers. Between 1976 and 1986, the highest annual growth rate for this field (8.3 percent) was reported among those employed in educational institutions; for those in industry, the annual growth rate was 6.8 percent. Despite this faster growth, only about 4 percent of mechanical engineers were employed in academia in 1986.

jobs in private industry

Mechanical engineers in manufacturing and nonmanufacturing industries: 1986



SOURCE: National Science Foundation, SRS; unpublished data

- Two-thirds of mechanical engineers in private industry held jobs in the manufacturing rather than nonmanufacturing sector in 1986.[4] In comparison, about three-fifths of all engineers combined were employed in manufacturing industries.
- In manufacturing, about three-quarters of both mechanical engineers and all engineers combined were concentrated in four industries in 1986: fabricated metals, machinery, electrical equipment, or transportation equipment. Of these, mechanical engineers were more likely than all engineers to be in the machinery industry.
- About one-half of the mechanical engineers in the nonmanufacturing sector held jobs in miscellaneous services (e.g., engineering, architectural, and surveying services); another one-fifth were in business services (e.g., computer and data processing services, research and development (R&D) laboratories, management and consultant services). For all engineers combined, the respective proportions in these two industries were two-fifths and one-fifth.

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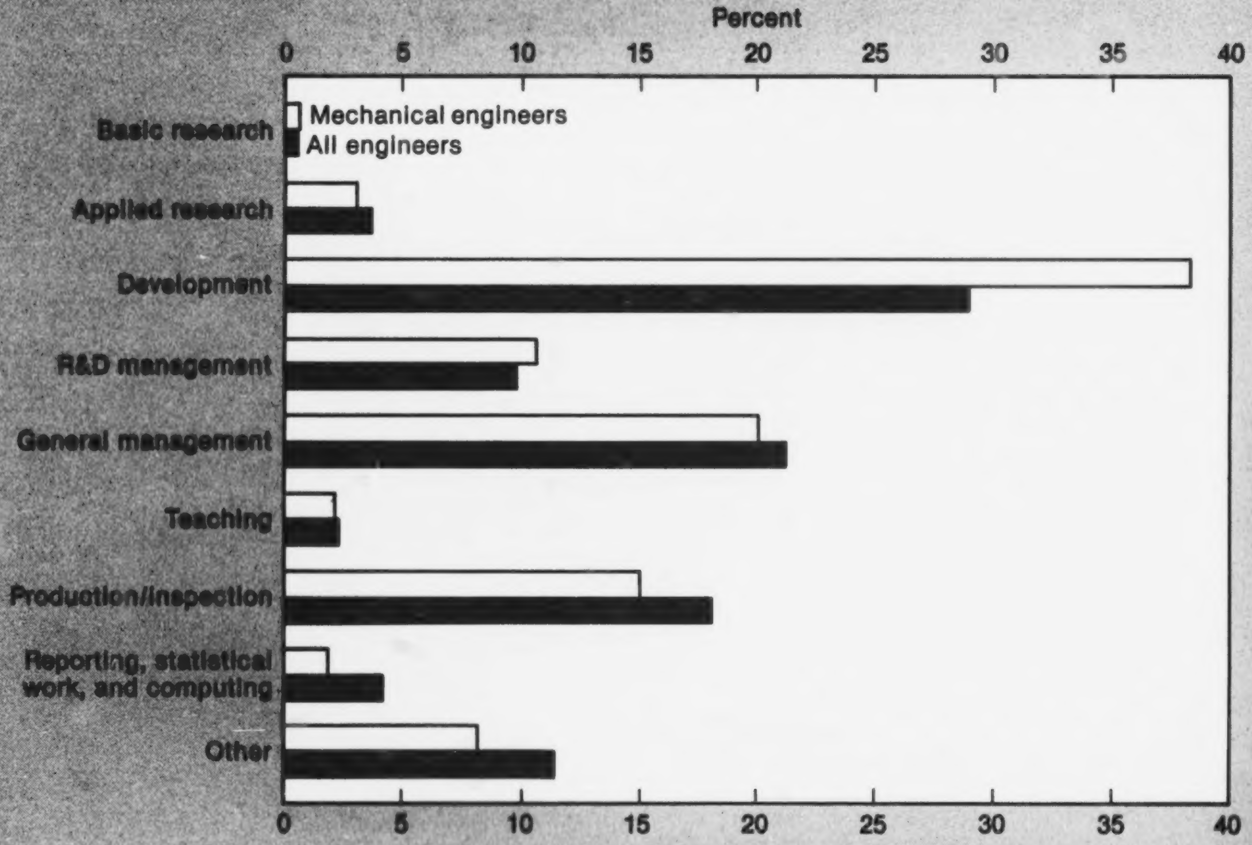
[4] Data for this section are adapted from the Bureau of Labor Statistics' "Occupational Employment Survey" and are preliminary.

primary work activities

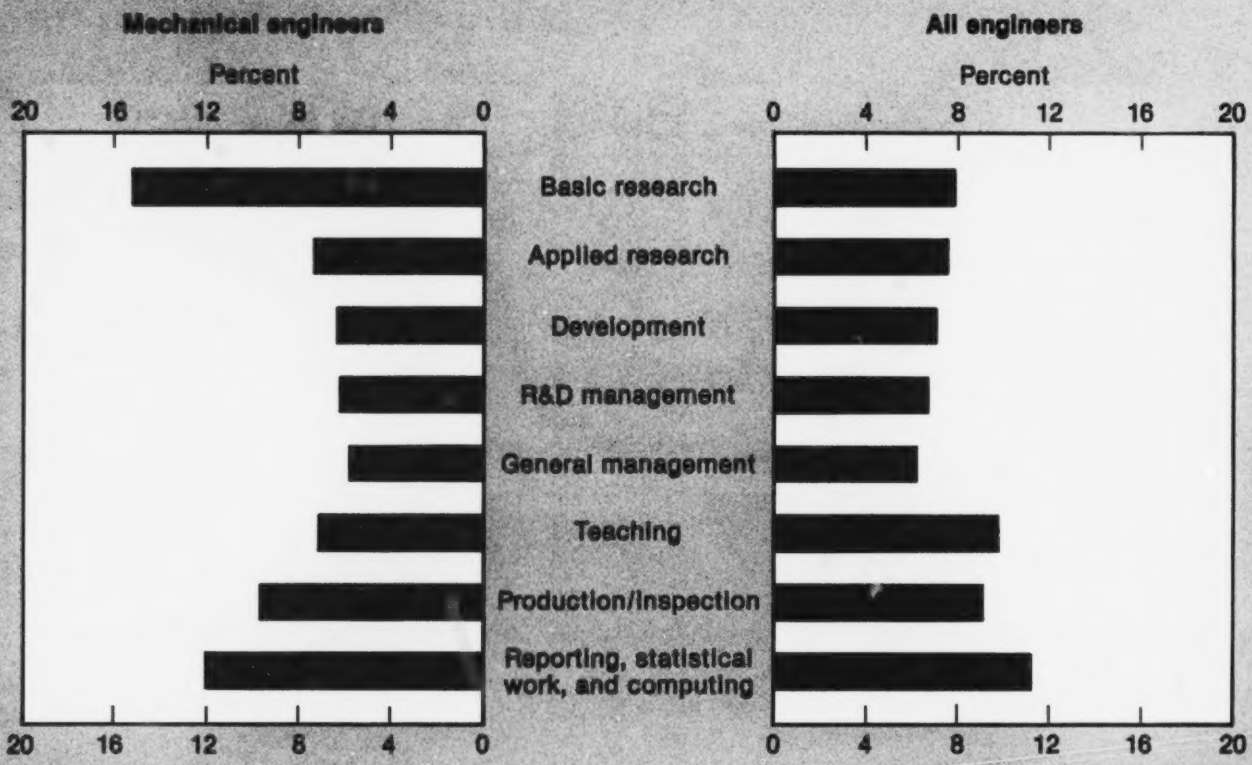
Primary work activities: 1986



SOURCE: National Science Foundation, SRS; based on appendix table 13

- In 1986, almost two-fifths of mechanical engineers reported development as their primary work activity. Another one-fifth reported general management, excluding R&D management, as their primary work activity. In contrast, about 30 percent of all engineers combined reported development as their primary activity; another two-fifths worked in either general management or production/inspection.
- There has been little change in the distribution of work activities among mechanical engineers since 1976. The largest shift occurred in the share primarily engaged in production/inspection activities, rising from 11 percent to 15 percent during the 10-year period.

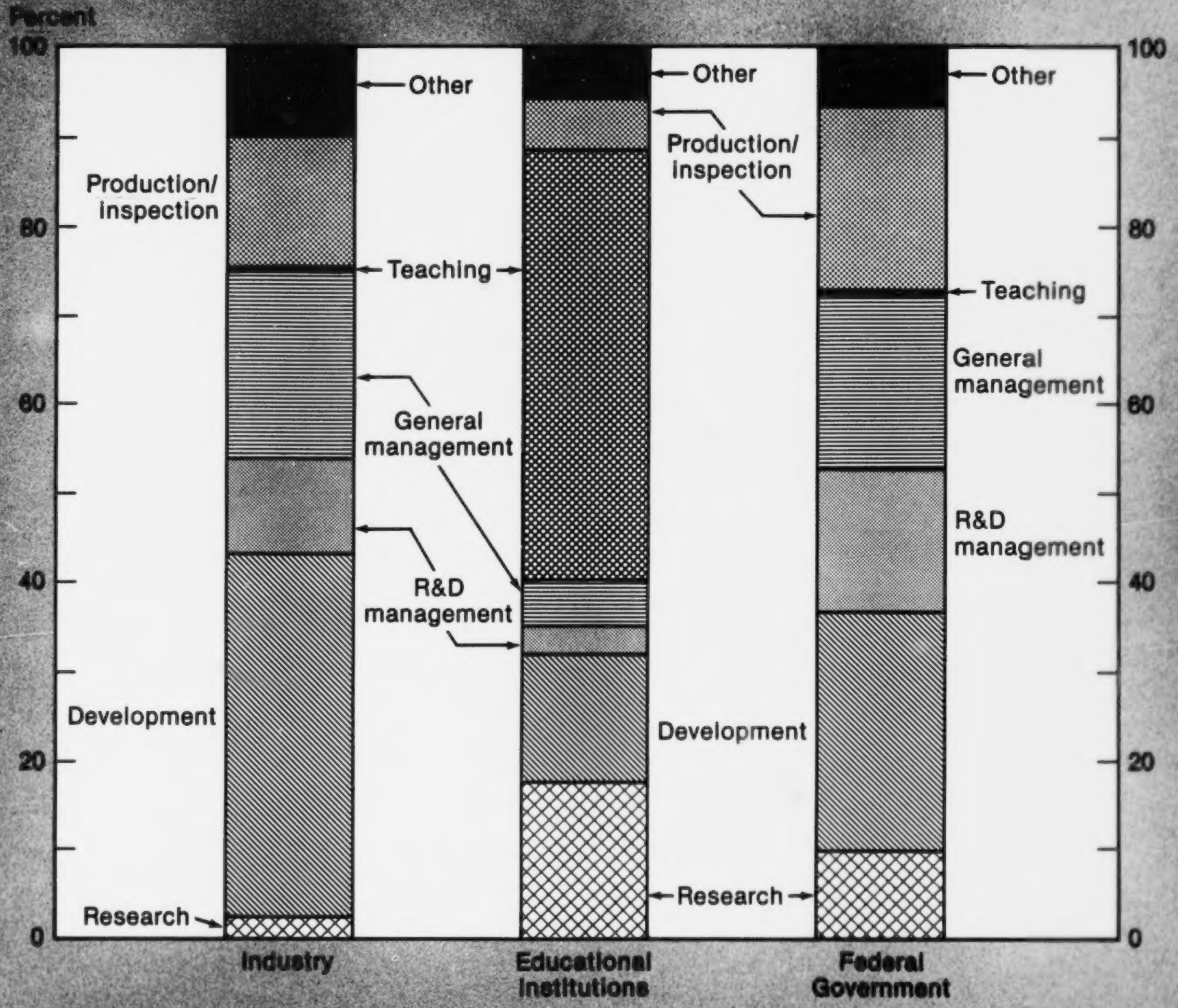
Average annual growth rates by selected primary work activity: 1986



SOURCE: National Science Foundation, SRS; based on appendix table 13

- Between 1976 and 1986, development and general management, the most often reported work activities of mechanical engineers, registered growth rates below those of such other activities as production/inspection and reporting, statistical, and computing work. While the number of mechanical engineers in development rose at an annual rate of 6.5 percent, production and reporting activities, for example, rose at rates of 10 percent and 12 percent, respectively.
- The fastest growing work activity among mechanical engineers over the decade (15 percent per year) was basic research. Nonetheless, by 1986, less than 1 percent reported this type of work as their primary activity. This above average growth resulted from the increasing proportion of academically employed mechanical engineers working in basic research. In 1986, almost 7 percent of mechanical engineers employed in educational institutions reported this activity as their primary work, up from about 1 percent in 1976.

Primary work activities of mechanical engineers by selected sector: 1988

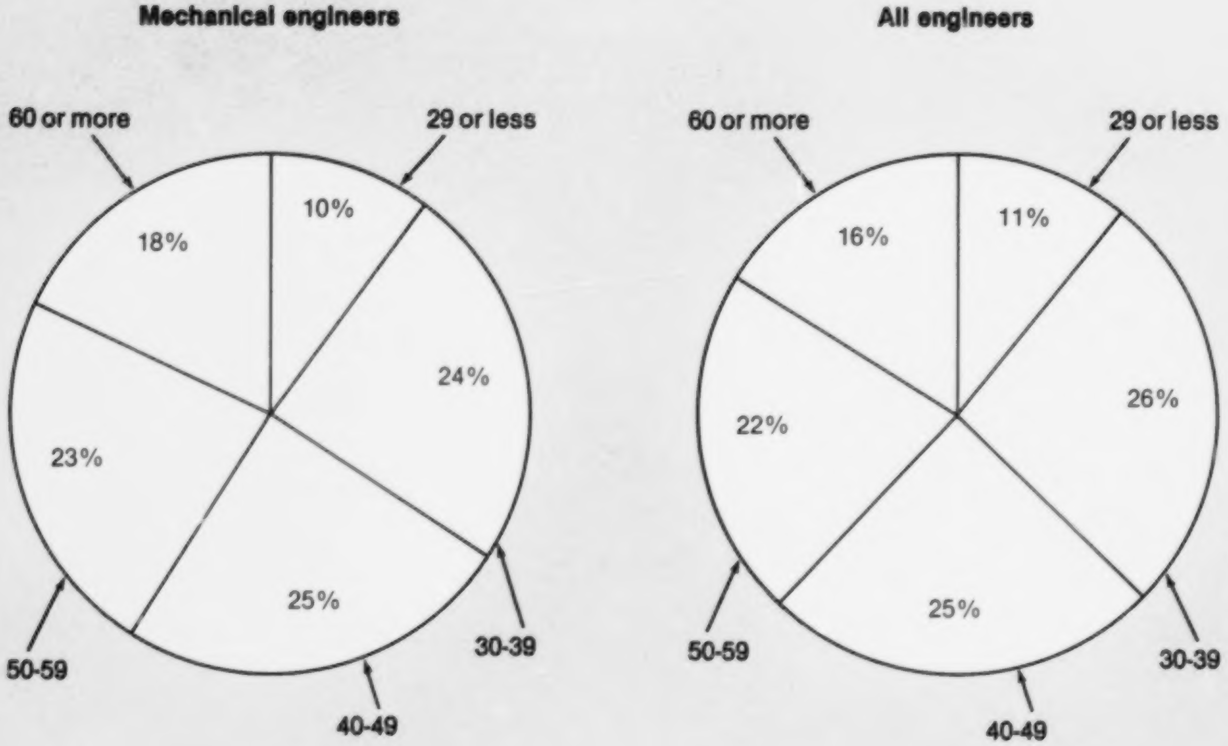


SOURCE: National Science Foundation, SRS; based on appendix table 12

- The work activities of mechanical engineers vary across sector of employment. While those employed by either industry or the Federal Government were more likely to be working in development, management, or production, those in the academic sector concentrated more on research, development, or teaching activities.

demographic characteristics

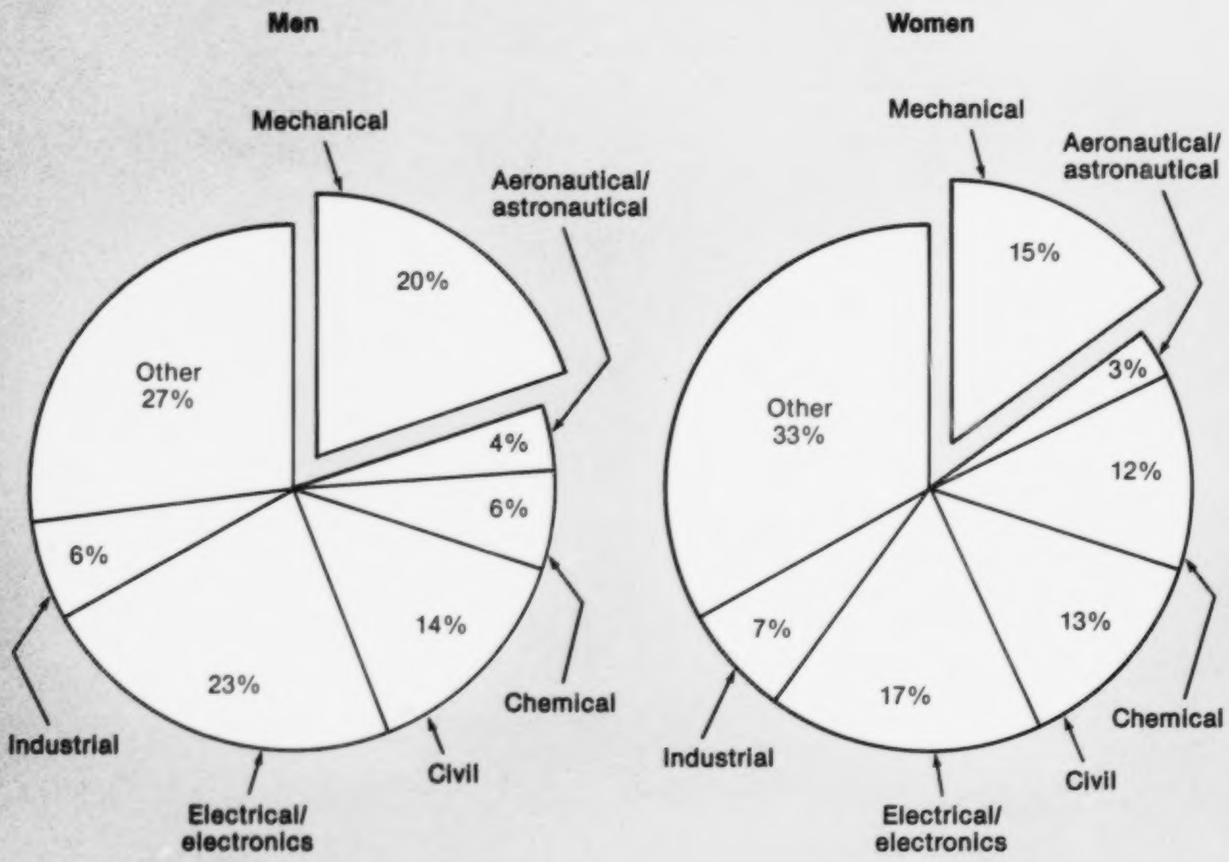
Employment by age distribution: 1986



SOURCE: National Science Foundation, SRS; based on appendix table 16

- The average age of mechanical engineers has risen sharply over the decade. Between 1976 and 1986, the proportion over 50 years of age rose from 27 percent to 41 percent; in 1986, only 10 percent of employed mechanical engineers were under 30 years old. This age distribution is similar for all engineers combined.

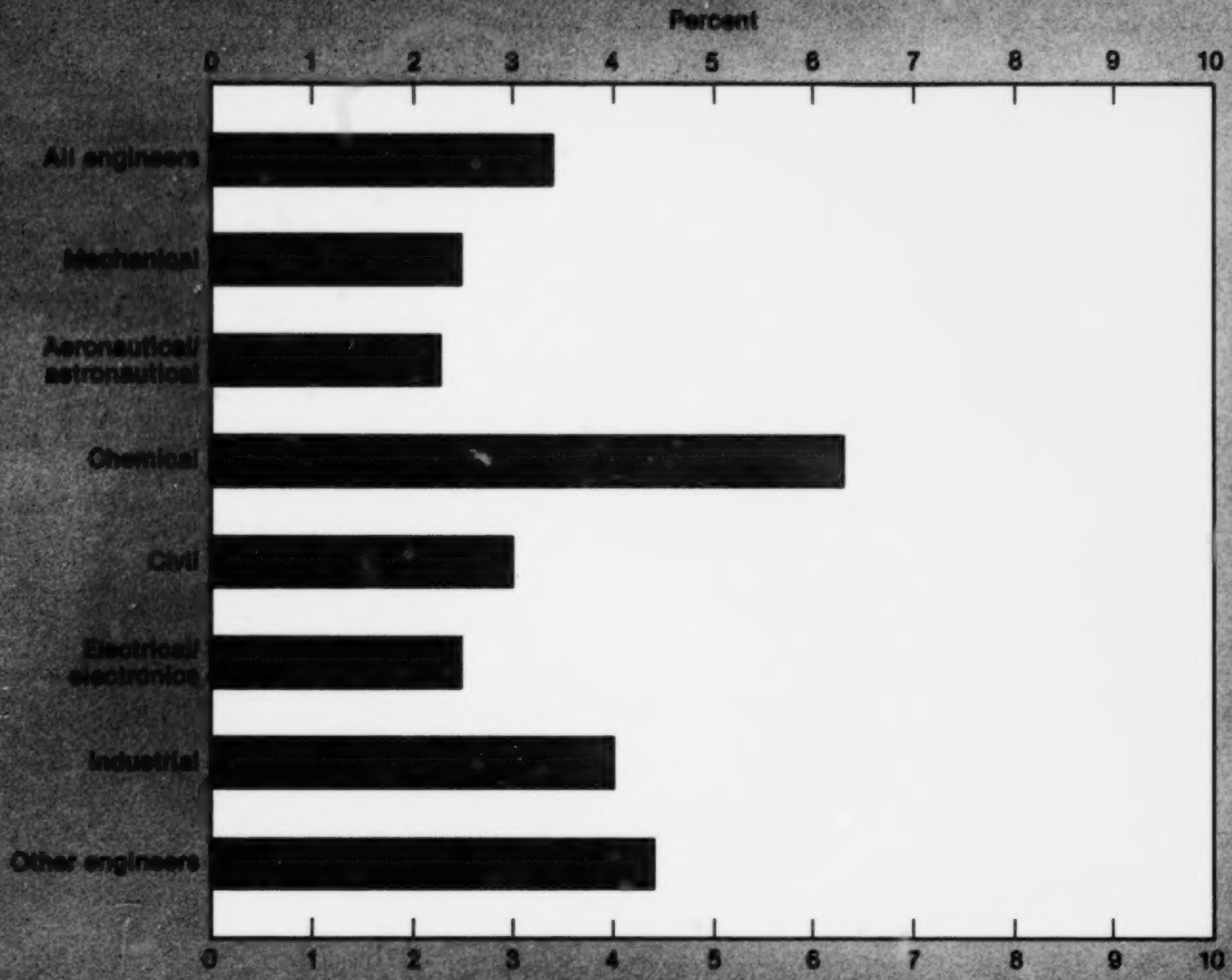
Employed engineers by field and sex: 1986



SOURCE: National Science Foundation, SRS; based on appendix table 2

- Women are less likely than men to be mechanical engineers. Mechanical engineering accounted for about 15 percent of the women engineers in 1986 compared to 20 percent of their male counterparts.

Employed women as a percent of engineers by field: 1986



SOURCE: National Science Foundation, SRS; based on appendix table 2

- Less than 13,000 women were mechanical engineers in 1986, representing 2.5 percent of the total. In comparison, women account for 3.4 percent (86,400) of all engineers combined. On the other hand, the annual employment growth of women mechanical engineers was more than triple that for comparable men. Between 1976 and 1986, the annual growth for women in this field was almost 19 percent compared to 6 percent for men. For all engineers combined, the annual growth in employment of women was also substantially higher than that of men: 15 percent versus 6 percent.

Employed engineers by field and minority group: 1986

Field	White	Black	Asian	Native American	Hispanic[1]
All engineers	2,273,500	46,600	168,400	20,100	61,400
	Percent				
Total	100.0	100.0	100.0	100.0	100.0
MECHANICAL	20.4	12.9	18.2	21.9	18.9
Aeronautical/astronautical	4.5	3.2	4.2	1.5	2.8
Chemical	6.2	3.9	8.8	6.0	6.0
Civil	13.6	13.1	20.2	14.9	17.6
Electrical/electronics	22.2	30.9	26.5	33.3	23.8
Industrial	6.1	7.9	2.3	5.5	7.0
Other[2]	27.0	28.1	19.8	16.9	23.9

[1] Includes members of all racial groups.

[2] Includes materials, mining, nuclear, petroleum, and other engineers.

SOURCE: National Science Foundation, [illegible]; based on appendix table 3

- Blacks were less likely than members of other racial groups to be mechanical engineers. About 1 in 8 black engineers was in mechanical engineering in 1986 compared to about 1 in 5 for whites, Asians, and native Americans.
- Since 1976, employment in mechanical engineering has risen faster for Asians (12 percent per year) than for whites (6 percent).
- Mechanical engineering accounted for about 19 percent of all Hispanic engineers in 1986.

Minorities as a percent of employment in engineering fields: 1986

Field	Total		Black	Asian	Native American	Hispanic[1]
	Number	Percent				
	Percent					
All engineers	2,560,600	100.0	1.8	6.6	0.8	2.4
MECHANICAL	513,700	100.0	1.2	6.0	.9	2.3
Aeronautical/astronautical	111,600	100.0	1.3	6.3	.3	1.5
Chemical	163,100	100.0	1.1	9.1	.7	2.3
Civil	365,700	100.0	1.7	9.3	.8	3.0
Electrical/electronics	581,300	100.0	2.5	7.7	1.2	2.5
Industrial	150,900	100.0	2.5	2.6	.7	2.8
Other[2]	674,300	100.0	1.9	4.7	.5	2.2

[1] Includes members of all racial groups.
[2] Includes materials, mining, nuclear, petroleum, and other engineers.
SOURCE: National Science Foundation, SRS; based on appendix table 3

- Among the 514,000 mechanical engineers employed in 1986, about 6,000 (1.2 percent) were black, 30,600 (6 percent) were Asian, and 4,400 (0.9 percent) were native American. Blacks and Asians were more highly represented across all engineering fields combined: 1.8 percent and 6.6 percent, respectively.
- In 1986, the number of Hispanics employed in mechanical engineering was 11,600, representing 2.3 percent of all mechanical engineers.

labor market indicators

Selected market characteristics: 1986

[Percent]

Characteristic	Mechanical engineers	All engineers
Labor force participation rate	93.5	95.3
Unemployment rate	1.4	1.2
S/E employment rate	92.9	93.1
S/E underemployment rate	.9	1.0
S/E underutilization rate	2.3	2.2

SOURCE: National Science Foundation, SRS; based on appendix table 18

- The unemployment rate for mechanical engineers has declined substantially since 1976 from 4.3 percent to 1.5 percent in 1986. This rate for all engineers declined from 3.2 percent to 1.2 percent.
- Rates unique to the science and engineering (S/E) work force[5] are similar for both mechanical engineers and all engineers combined. For example, both showed an S/E employment rate of 93 percent and an S/E underemployment rate of approximately 1 percent in 1986.

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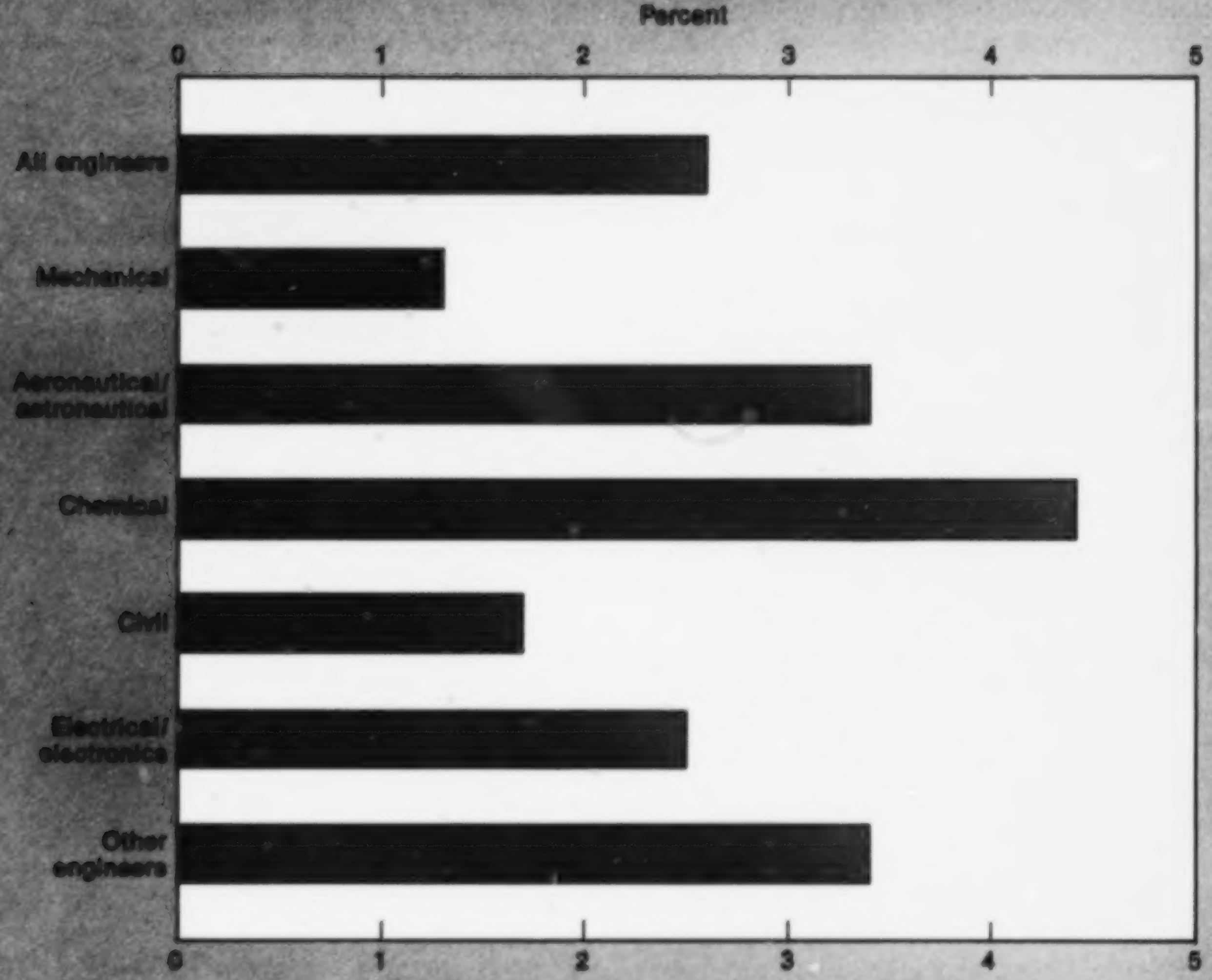
[5] The S/E employment rate measures the extent to which employed scientists and engineers have a job in science or engineering. The S/E underemployment rate measures the extent of potential underemployment, i.e., those who are involuntarily working in non-S/E jobs or involuntarily working part time as a percent of total employment of scientists and engineers. See Technical Notes (appendix A) for complete definitions of market rates.

mechanical engineers with doctorates

Doctoral intensity rate by engineering field: 1985

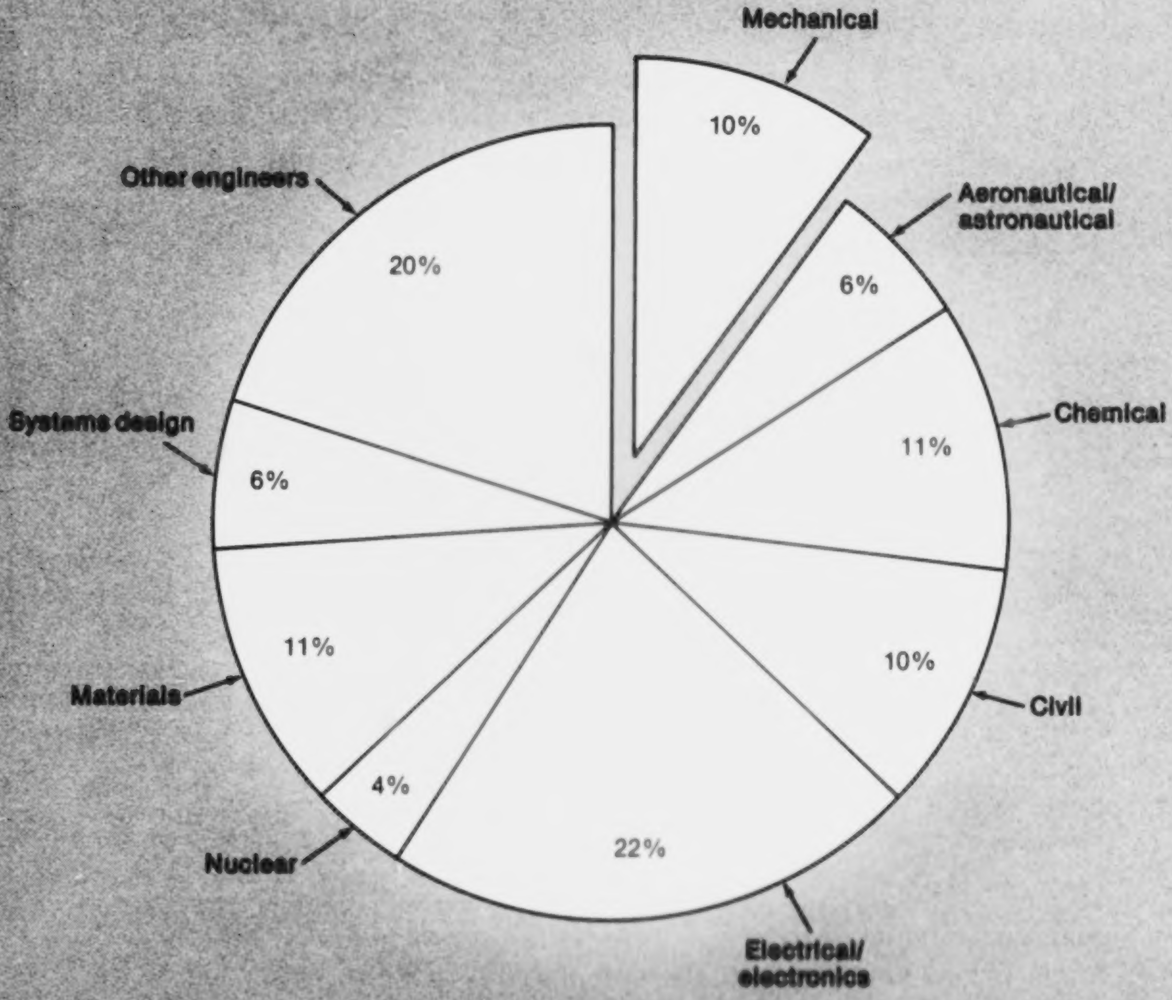


NOTE: Doctoral intensity is defined as doctoral employment as a percent of total S/E employment.
SOURCE: National Science Foundation, SRS; appendix table 17

- Very few mechanical engineers hold doctorates. In 1985, their doctoral intensity rate (the ratio of doctoral S/E holders to total employment of scientists and engineers) was 1.3 percent, compared to a rate of 2.6 percent for all engineers combined. These rates have remained virtually constant since 1976.

Employed doctoral engineers by field: 1985

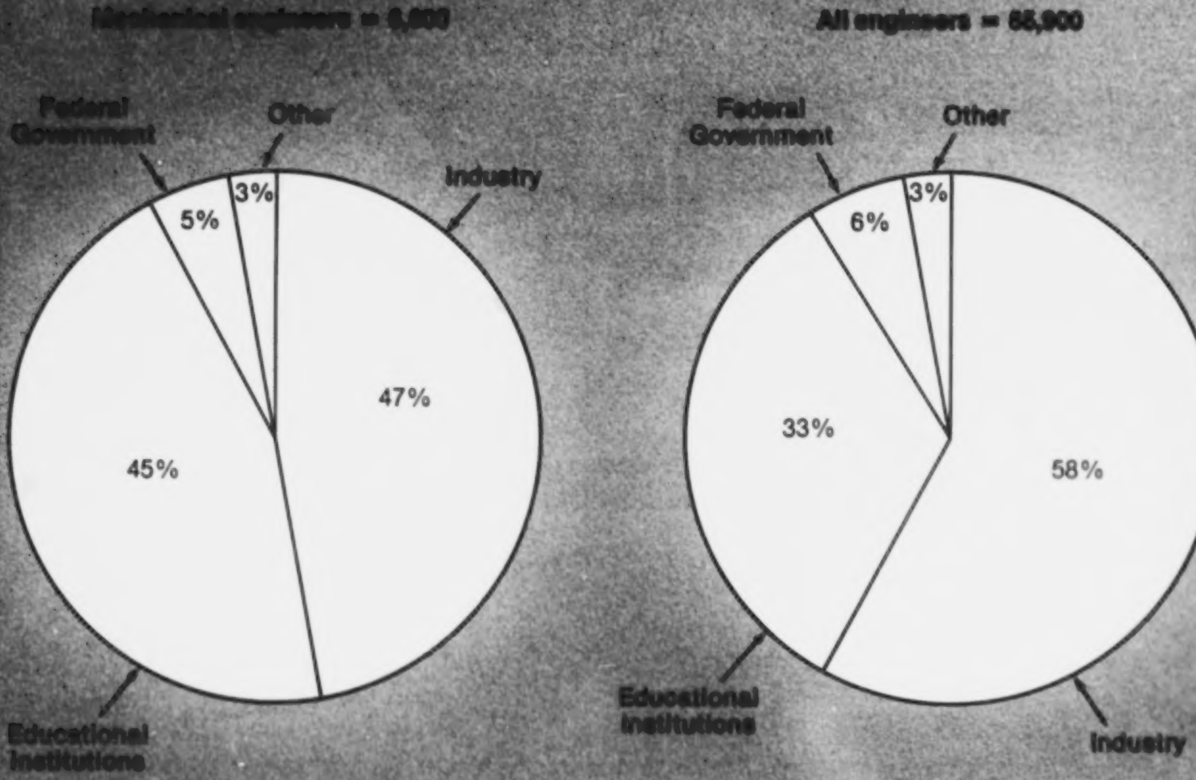
Total = 65,900



SOURCE: National Science Foundation, SRS; based on appendix table 4

- Mechanical engineers accounted for a lower fraction of doctoral engineers than of the total engineering work force. In 1985, about one-tenth of Ph.D. engineers were in mechanical engineering; at the same time, about one-fifth of all engineers were in this field.

Doctorate holders by sector of employment: 1985

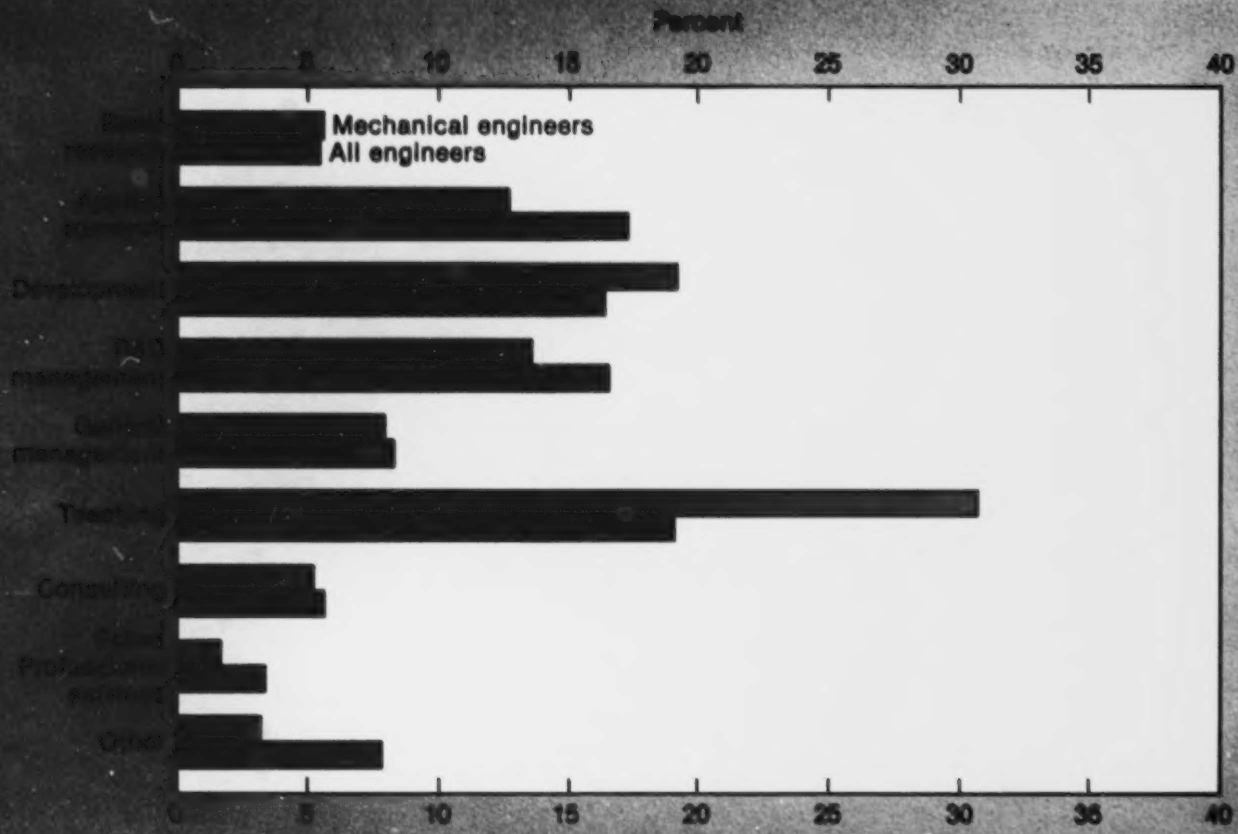


SOURCE: National Science Foundation, SRS; based on appendix table 10

- More than nine-tenths of Ph.D. mechanical engineers are concentrated in two sectors of employment. Industry employed 47 percent of these individuals and educational institutions accounted for another 45 percent in 1985. By contrast, all Ph.D. engineers combined were more heavily concentrated in the industrial sector (58 percent).

- Between 1975 and 1985, industry was the fasted growing sector for both doctoral mechanical engineers and all doctoral engineers. The annual growth rate over the decade was approximately 5.5 percent for each. In academia, the average annual employment growth rate for mechanical engineers outpaced that for all engineers combined: 5.1 percent versus 3.8 percent.

Doctorate holders by primary work activities: 1985



SOURCE: National Science Foundation, SRS; based on appendix table 14

- Mechanical engineers with doctorates were heavily concentrated in two work activities: in 1985, more than two-thirds reported either research and development or teaching as their primary work. For all Ph.D. engineers combined, less than three-fifths reported these two work activities. Within research and development, the work of both mechanical engineers and all engineers combined primarily focused on development activities.

- For the 1975-85 decade, the fastest growing work activities for both doctoral mechanical engineers and all doctoral engineers was sales and professional services, growing at annual rates of 19 percent each. This activity, however, was reported by less than 2 percent of the mechanical engineers and about 3 percent of all engineers in 1985. Basic research and consulting, activities which also account for only small fractions of engineers' work activities, registered annual growth rates of 11 percent and 9 percent, respectively, for Ph.D. mechanical and all engineers combined.

Academic rank and tenure status of doctorate-holders: 1985

[Percent]

Rank and tenure status	Ph.D. mechanical engineers	All Ph.D. engineers
Academic rank	100	100
Full professor	47	50
Associate professor	18	26
Assistant professor	33	20
Instructor	[1]	[1]
Administrator	[1]	[1]
Other and no report	2	4
Tenure status	100	100
Tenured	50	61
Tenure-track	38	21
Nontenure track	6	9
Unknown and no report	6	9

[1] Too few cases to estimate.

SOURCE: National Science Foundation, SRS; *Characteristics Of Doctoral Scientists And Engineers In The United States: 1985*, and unpublished data

- For those doctorate holders employed in academia, mechanical engineers are less likely than all engineers combined to hold full professorships or tenure. In 1985, 47 percent of mechanical engineers compared to 50 percent of all engineers were full professors. The assistant professor level, however, accounted for 33 percent of mechanical engineers but only 20 percent of all engineers. Partially reflecting these differences in academic rank, in 1985, 50 percent of mechanical engineers held tenure as compared to 61 percent of all engineers. An additional 38 percent of mechanical engineers and 21 percent of all engineers were in tenure-track positions.

- Since 1975, the proportions of both mechanical engineers and all engineers holding full professorships has increased to 43 percent and 47 percent, respectively. The most dramatic change, however, occurred in the share of Ph.D. mechanical engineers who hold the assistant professorship rank, up from 17 percent in 1975.

iii. education pipeline

undergraduate enrollment

Fall 1985 undergraduate engineering enrollments by curriculum

Field	Full-time	Part-time
Total	384,191	36,673
MECHANICAL	66,738	7,639
Aerospace	15,699	751
Agricultural	2,300	60
Architectural	3,009	217
Bioengineering	3,518	57
Ceramic	1,144	42
Chemical	23,423	1,375
Civil	34,547	3,329
Computer	20,712	2,621
Electrical	112,205	14,005
Engineering science	7,092	699
Environmental	707	31
General	21,574	1,231
Industrial	16,434	1,182
Marine	2,068	32
Materials and metallurgy	3,204	224
Mining	2,431	99
Nuclear	1,857	55
Other	825	78
Petroleum	4,038	372
Pre-engineering[1]	38,633	2,351
Systems	2,033	223

[1] Includes undeclared majors.

SOURCE: Engineering Manpower Commission, *Engineering And Technology Enrollments, Fall 1985*, (Washington, D.C.: American Association of Engineering Societies), 1986.

- In the fall of 1985, the number of undergraduate students enrolled full time in mechanical engineering programs reached almost 67,000.[6] Enrollment in this curriculum represented the second largest share, 17 percent, of the undergraduate enrollments in engineering overall. The largest proportion (29 percent) was accounted for by electrical engineering programs.
- Full-time enrollment in mechanical engineering has increased more rapidly than has enrollment in engineering programs overall. Between 1975 and 1985, enrollment in these programs rose at an annual rate of 6.5 percent compared to a rate of 5.2 percent in total engineering enrollment.[7] Part-time enrollment in mechanical engineering rose at an annual rate of 8.2 percent and outpaced full-time enrollment; for engineering overall, part-time enrollment increased at an 8.0 percent annual rate.

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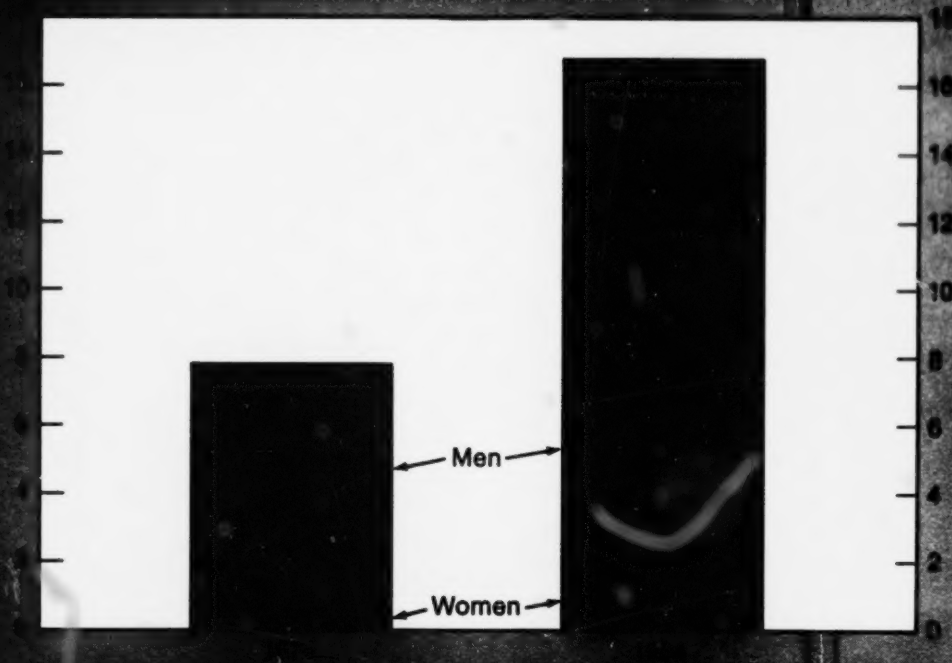
[6] Engineering Manpower Commission, *Engineering and Technology Enrollments, Fall 1985* (Washington, D.C.: American Association of Engineering Societies), 1986.

[7] Data for 1975 are made from Engineering Manpower Commission, *Engineering and Technology Enrollments, Fall 1975*, (New York, N.Y.: Engineering Joint Council), 1976.

Bachelor's degrees

Bachelor's degree recipients in mechanical engineering: 1974-84

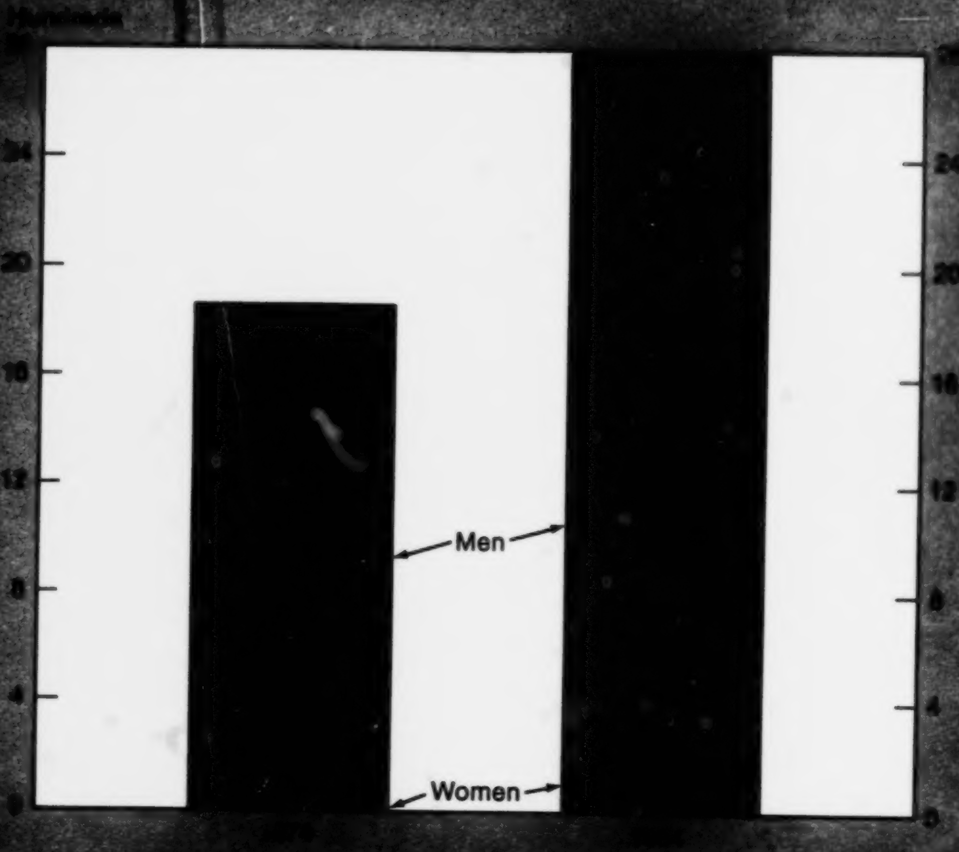


Field and sex	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Total engineering	[illegible]	[illegible]	[illegible]	[illegible]	47,411	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Men	[illegible]	[illegible]	[illegible]	[illegible]	43,914	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Women	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mechanical engineering	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Men	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Women	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,446	1,764

SOURCE: National Science Foundation, SRS; appendix table 24

- Among those who received baccalaureates in engineering, the second largest fraction was represented by those in mechanical engineering. Almost 16,700 degrees were granted in this field in 1984, representing 22 percent of all engineering degrees. Degrees in electrical engineering accounted for the largest proportion (26 percent). Since 1974, degrees in mechanical engineering have risen at an annual rate of 8 percent, higher than the rate of growth in engineering degrees overall (6 percent). In 1984, about 11 percent of the mechanical engineering degrees were granted to women, up from less than 1 percent a decade earlier. In comparison, women accounted for 14 percent of all engineering degree recipients.

[illegible] in mechanical engineering: 1974-84

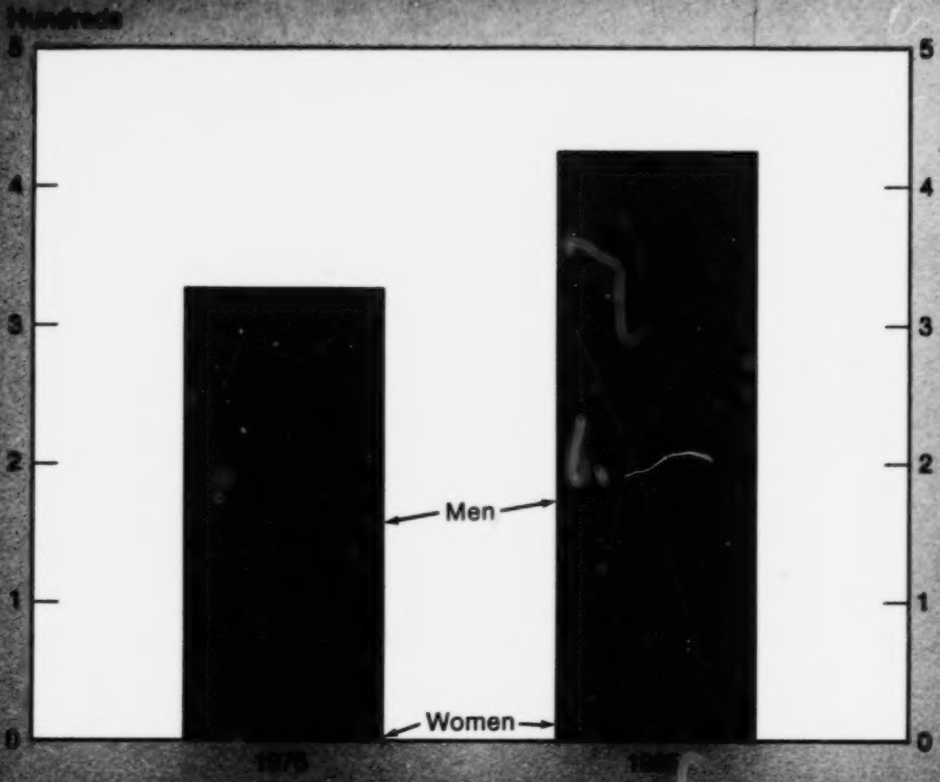


[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Engineering, total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Men	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Women	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mechanical engineering	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Men	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,811	[illegible]	[illegible]	[illegible]	[illegible]
Women	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SOURCE: National Science Foundation, [illegible] appendix table [illegible]

- About 2,800 master's degrees were granted in mechanical engineering in 1984. This number represented 14 percent of all engineering degrees. Over the decade, degrees in this field rose an an annual rate of 4 percent compared to a 3-percent rate for all engineering master's degrees. Women accounted for a smaller fraction of mechanical engineering degrees than of engineering degrees overall: 7 percent versus 11 percent.

Doctorate recipients [illegible] mechanical engineering: 1975-85

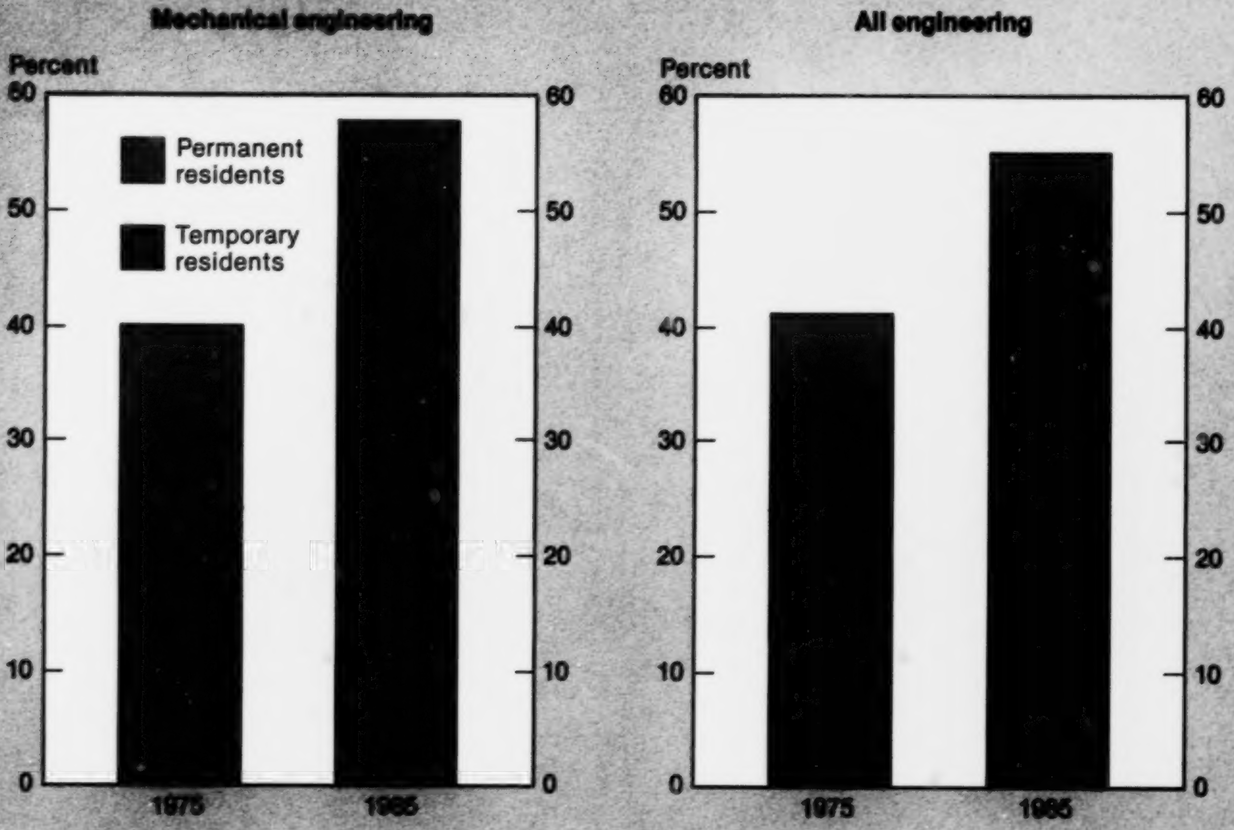


Field and sex	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Engineering, total	3,002	2,834	2,643	2,428	2,490	2,479	2,528	2,646	2,771	2,913	3,165
Men	2,920	2,780	2,569	2,370	2,408	2,389	2,429	2,522	2,637	2,762	2,967
Women	82	54	74	58	82	90	99	124	134	151	198
Mechanical engineering	325	304	270	282	281	293	282	294	311	336	424
Men	322	301	267	280	277	289	277	282	305	330	402
Women	3	3	3	2	4	4	5	12	6	6	22

SOURCE: National Science Foundation, SRS; appendix table 23

- Doctorates in mechanical engineering represented 13 percent of all engineering doctorates granted in 1985. The number of degrees granted in this field has risen since 1975 from 325 to 424; overall, the number of engineering Ph.D.'s only increased by 163 to 3,165. In 1985, 22 doctorates in mechanical engineering were received by women, accounting for 5 percent of all mechanical engineering degrees. Overall, women earned 198 Ph.D.'s, or 6 percent of the total, in engineering.

Non-U.S. citizens as a percent of doctorate recipients: 1975-85

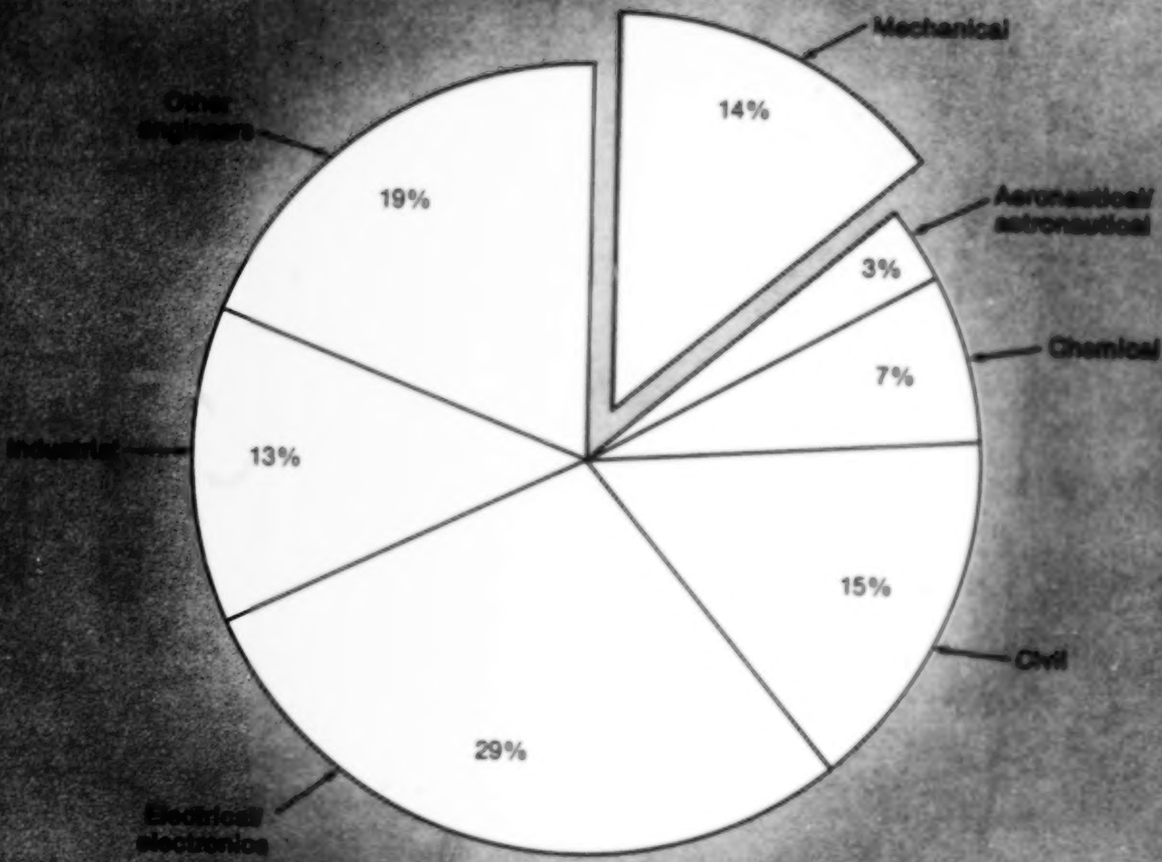


SOURCE: National Science Foundation, SRS; based on appendix table 27

- More doctoral degrees in mechanical engineering were awarded to non-U.S. citizens than to U.S. citizens in 1985. Between 1975 and 1985, the proportion of these degrees granted to either temporary or permanent residents of the United States rose from two-fifths to almost three-fifths. Overall, non-U.S. citizens accounted for more than one-half (55 percent) of the Ph.D.'s granted in engineering in 1985.
- All growth in the number of non-U.S. citizens earning doctoral degrees in mechanical engineering is attributable to the marked increase in the number granted to temporary residents. While the number of permanent residents earning degrees in this field remained at approximately 50 between 1975 and 1985, the number of temporary residents more than doubled from 79 to 191. Meanwhile, the number of U.S. citizens earning doctorates in mechanical engineering declined over the decade from 188 to 161.

graduate enrollment

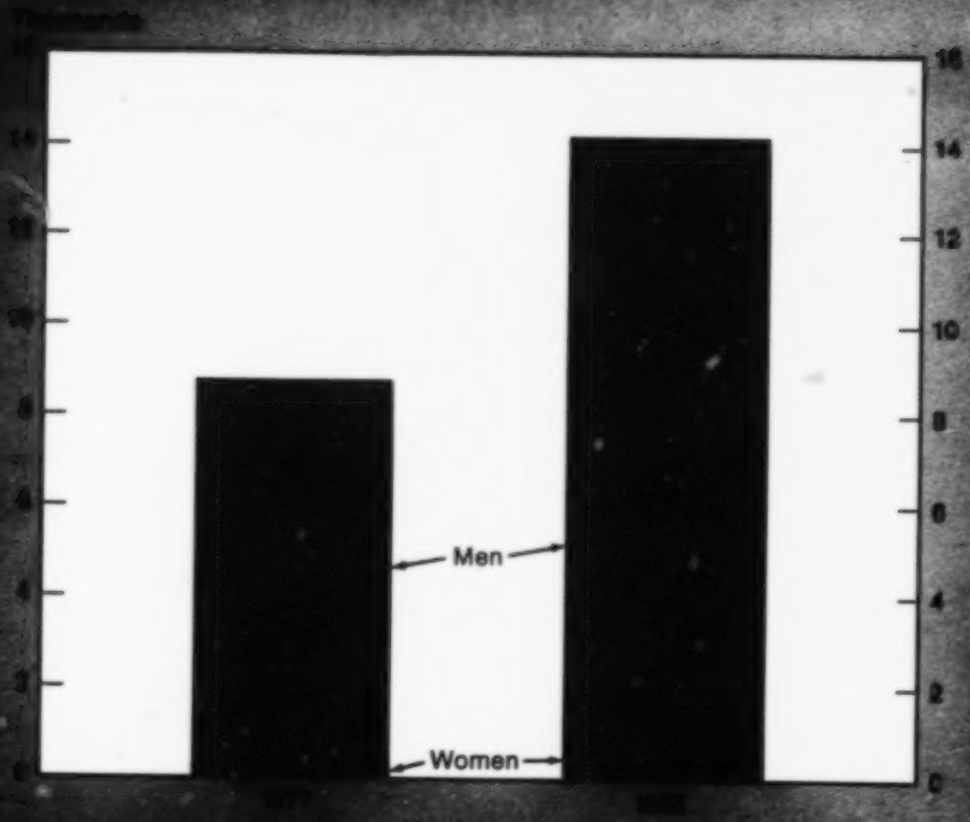
Graduate enrollment by engineering field: 1985



SOURCE: National Science Foundation, SRS; based on appendix table 28

- Graduate enrollment in mechanical engineering programs has been rising at a faster annual rate than that in engineering programs overall. Between 1977 and 1985, graduate enrollment in mechanical engineering rose at a yearly rate of 6.2 percent, compared to a rate of 4.8 percent overall. In 1985, this field represented about 14 percent (14,100) of graduate enrollment (full- and part-time) in engineering, about the same as its representation among graduate degrees granted.

Graduate enrollment in mechanical engineering by sex: 1977 and 1985

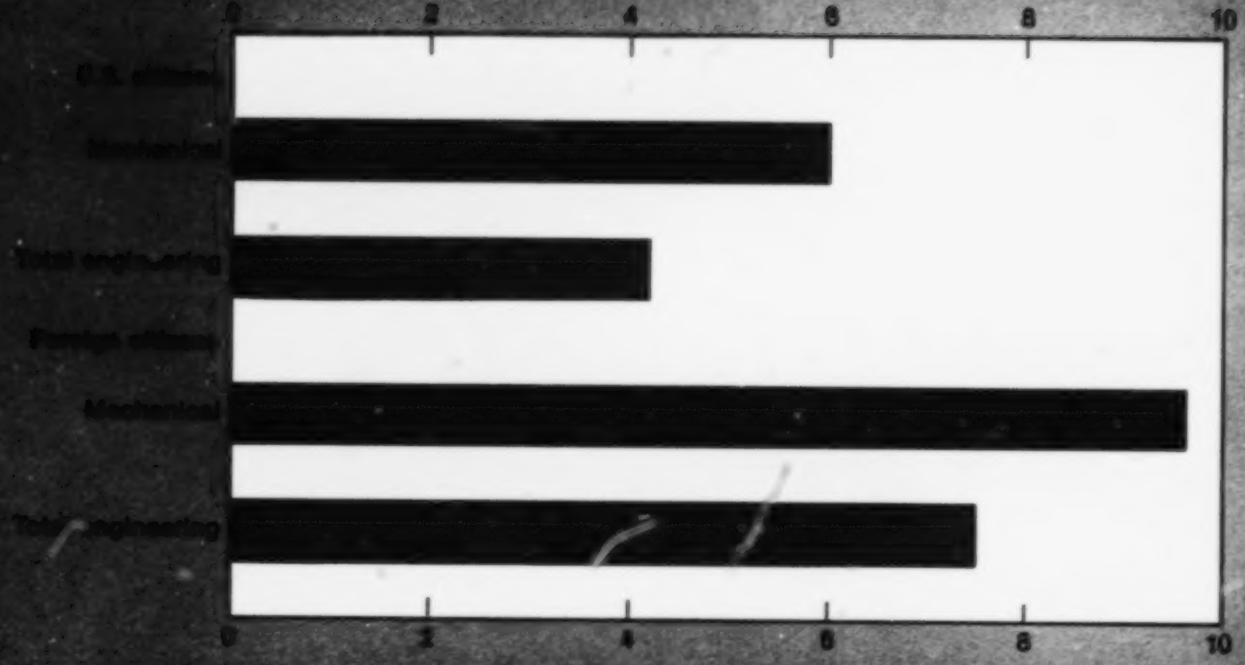


Field and sex	1977	1979	1980	1981	1982	1983	1984	1985
Engineering, total	[illegible]	72,332	75,084	81,478	84,594	93,155	96,829	100,388
Men	60,317	66,295	68,381	72,548	75,621	82,793	85,668	88,348
Women	[illegible]	6,037	6,703	7,931	8,973	10,362	11,161	12,040
Mechanical engineering	8,718	9,251	9,888	10,618	11,467	12,811	13,824	14,136
Men	8,445	8,752	9,304	9,967	10,748	12,106	12,963	13,110
Women	273	499	584	651	719	695	861	1,026

SOURCE: National Science Foundation, [illegible], appendix table 29

- Women account for only a small percentage of graduate enrollment in mechanical engineering degree programs. In 1985, only 7 percent of those enrolled in graduate studies were women whereas women represented more than 12 percent of graduate enrollment in engineering programs overall. Nonetheless, the number of women in mechanical engineering programs has increased fourfold since 1977 from 273 to 1,026.

Annual growth rates in full-time graduate enrollment by citizenship: 1977-85



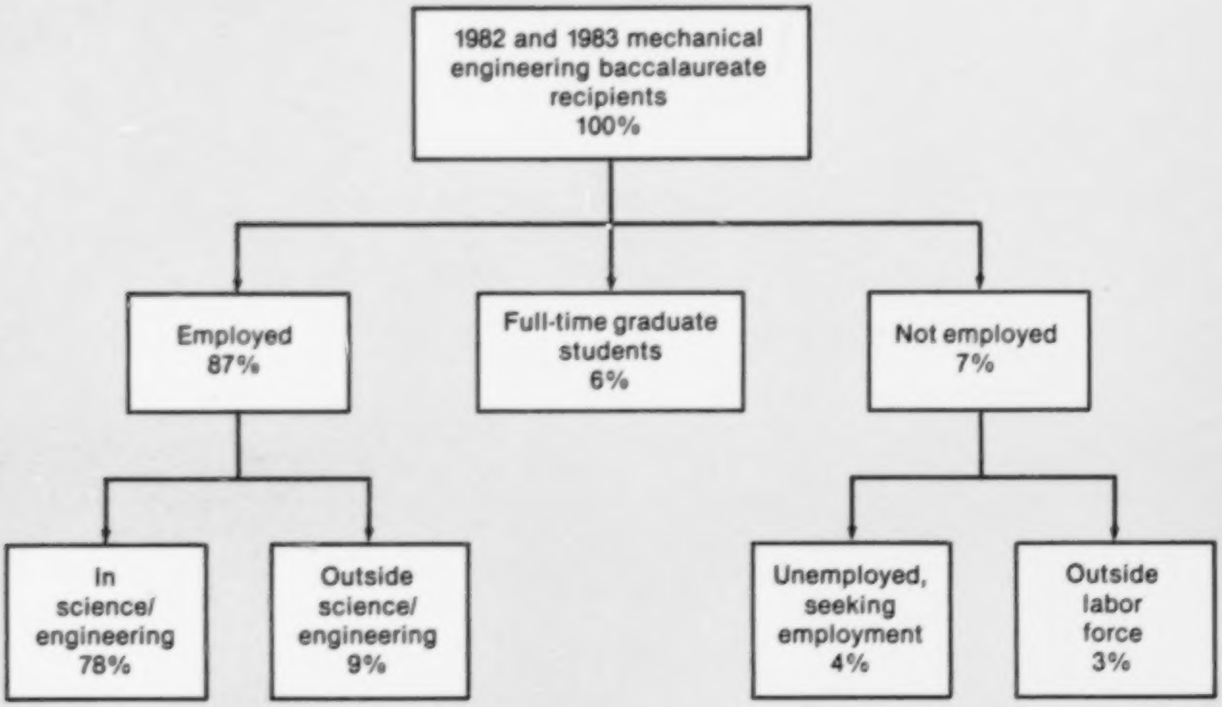
SOURCE: National Science Foundation, [illegible]; based on appendix table [illegible]

- Foreign citizens represent a smaller fraction of full-time graduate enrollment in mechanical engineering programs than they do of new doctorates in mechanical engineering. In 1985, about 45 percent of those enrolled in this field were non-U.S. citizens (both temporary and permanent residents); they accounted, however, for 58 percent of the mechanical engineering Ph.D.'s granted that same year.

- The proportion of foreign citizens enrolled full time in graduate programs has increased from 39 percent in 1977 to 45 percent in 1985. Overall, foreign citizens represented 42 percent of full-time enrollment in engineering programs in 1985.

characteristics of recent-degree recipients

Selected characteristics of 1982 and 1983 mechanical engineering baccalaureate recipients: 1984

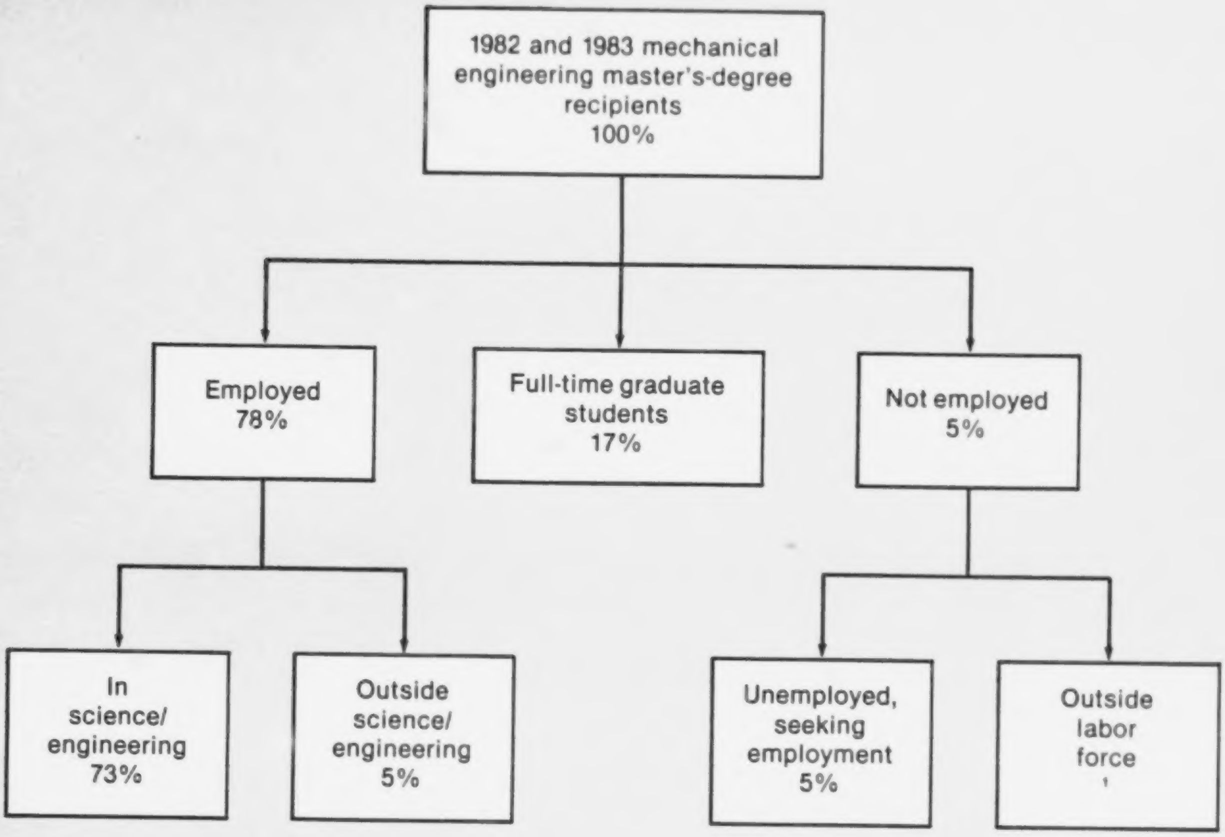

1982 and 1983 mechanical engineering baccalaureate recipients 100%
Employed 87%
Full-time graduate students 6%
Not employed 7%
In science/ engineering 78%
Outside science/ engineering 9%
Unemployed, seeking employment 4%
Outside labor force 3%

SOURCE: National Science Foundation, SRS; based on appendix table 6

- Only a small fraction of mechanical engineering bachelor's-degree recipients pursue graduate studies on a full-time basis. Among 1982 and 1983 degree recipients, only 6 percent were enrolled in full-time graduate programs in 1984; another 16 percent were enrolled part time. For all recent engineering degree recipients, about 9 percent were enrolled full time and 17 percent pursued part-time studies.

- A very high proportion of graduates with engineering degrees who enter the work force, rather than attend graduate school on a full-time basis, are employed in their degree field. In 1984, 84 percent of the 1982 and 1983 mechanical engineering degree-holders worked in their field of study. About 80 percent of all engineering degree recipients held jobs in their respective fields.

Selected characteristics of 1982 and 1983 mechanical engineering master's-degree recipients: 1984

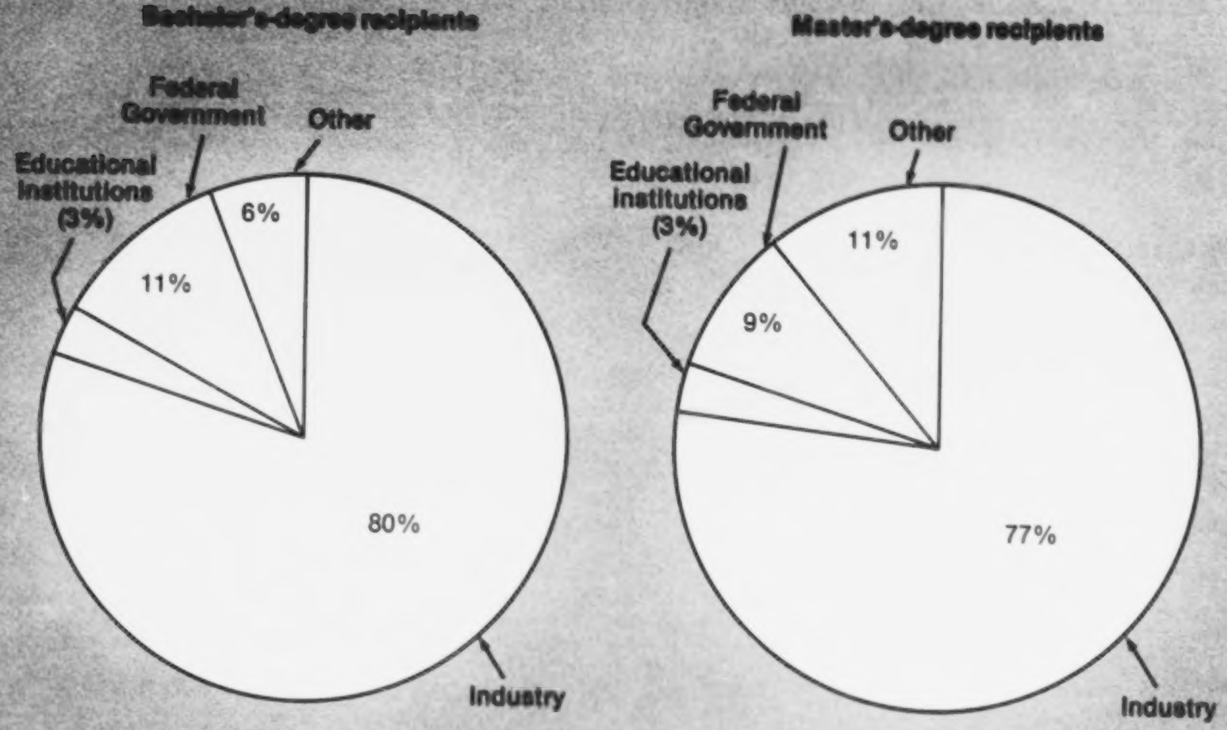

1982 and 1983 mechanical engineering master's-degree recipients 100%
Employed 78%
Full-time graduate students 17%
Not employed 5%
In science/ engineering 73%
Outside science/ engineering 5%
Unemployed, seeking employment 5%
Outside labor force [1]

[1] Too few cases to estimate.

SOURCE: National Science Foundation, SRS; based on appendix table 7

- At the master's-degree level, about 17 percent of the 1982 and 1983 mechanical engineering degree recipients were registered in full-time graduate programs in 1984. For all engineering graduates combined, about 16 percent were enrolled full-time.
- The in-field employment rate in 1984 was 87 percent for mechanical engineering graduates compared to 81 percent for engineering graduates overall.

1982 and 1983 mechanical engineering degree recipients by sector of employment in 1984



SOURCE: National Science Foundation, SRS; based on appendix table 11

- Regardless of subfield, most recent engineering bachelor's- and master's-degree recipients find employment in the industrial sector. Among 1982 and 1983 mechanical engineering baccalaureate degree recipients, about 80 percent were in this sector in 1984. The Federal Government accounted for the next largest share, 11 percent, of these degree recipients. The proportion of recent mechanical engineering degree-holders who work in industry, however, is lower than the proportion of all employed mechanical engineers (87 percent) working in this sector.

- The median annual salary earned by recent mechanical engineering degree-holders employed in industry is higher than that for those employed by other sectors. At the bachelor's level in 1984, the salary for those employed in industry was $27,600, compared to $20,000 for those in academia, and $25,000 for those working in the Federal Government. At the master's level, median salaries for mechanical engineering degree recipients were $32,000 (industry), $24,400 (academia), and $30,400 (Federal Government).

Selected characteristics of 1983 and 1984 engineering doctorate recipients: 1985

Selected characteristic	Ph.D. mechanical engineers	All Ph.D. engineers
Total employed		
Total	400	4,700
	Percent	
Men	98	94
Women	2	6
Sector of employment		
Industry	25	49
Educational institutions	67	43
Federal Government	8	6
Other	[1]	2
Primary work activity		
Research	45	41
Development	8	18
Teaching	47	22
Other	[1]	19

[1] Too few cases to estimate.

SOURCE: National Science Foundation, SRS; based on appendix tables 8, 11a, and 16a

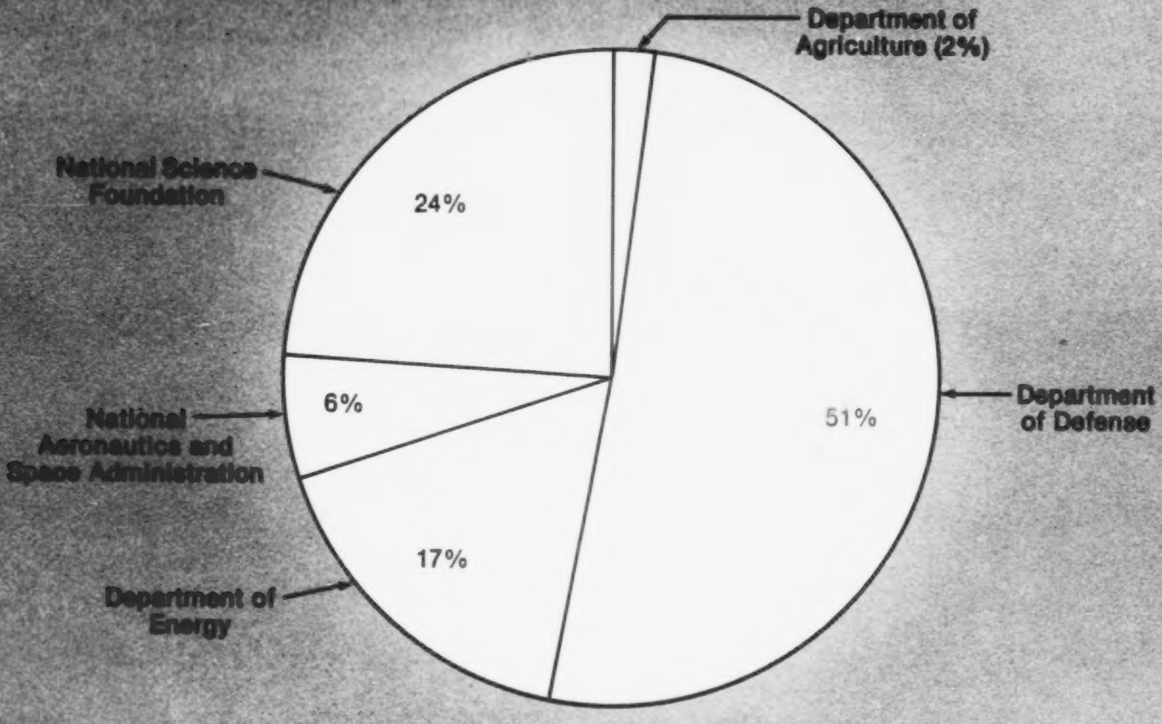
- Very few mechanical engineers earn doctorates in their field. In 1985, there were 417 recent (1983 and 1984) mechanical engineering doctorates employed in the United States: two-thirds were employed in academia and another one-quarter worked in industry.

iv. funding

federal funds

Federal obligations for basic research in mechanical engineering by agency: fiscal year 1986 (est.)

Estimated obligations for mechanical engineering = $89,568,000

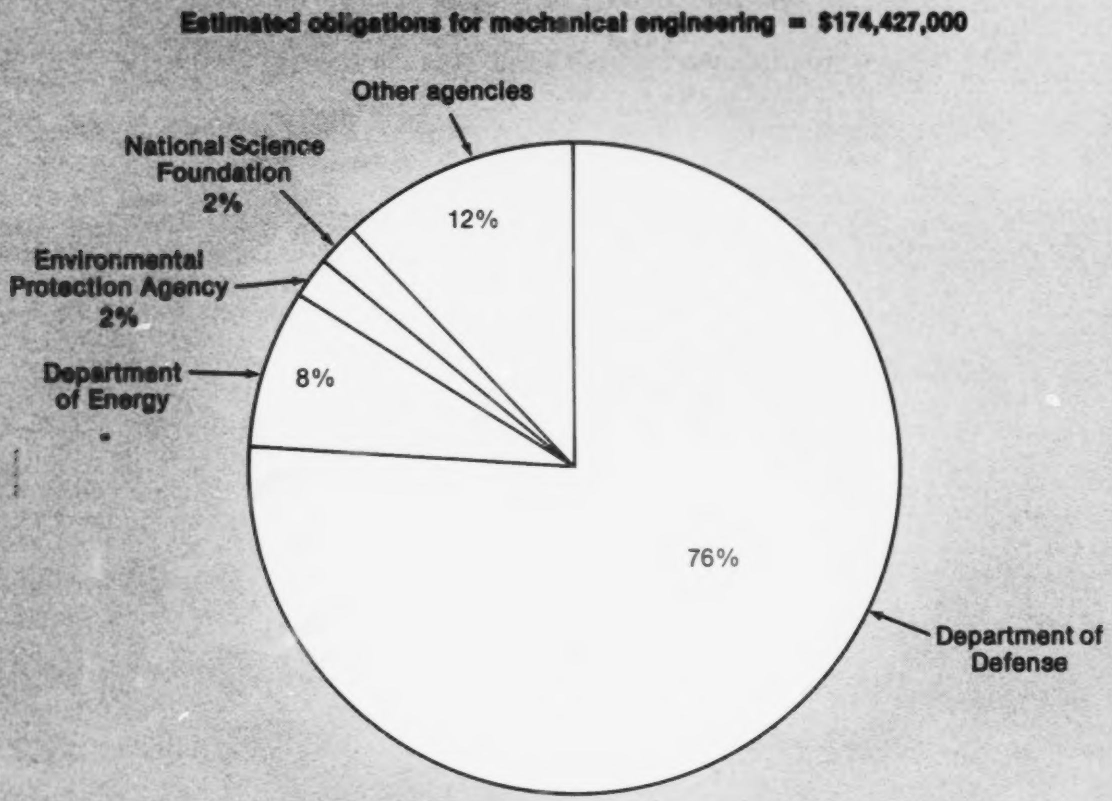


SOURCE: National Science Foundation, SRS; based on appendix table 31

- Basic research obligations in mechanical engineering at the Federal level reached almost $90 million in FY 1986. This field represented almost one-tenth of all engineering funding obligations. Federal funds for basic research in mechanical engineering have, since FY 1976, increased at a more rapid annual rate than funding for engineering overall: 16 percent versus 13 percent.

- Three agencies account for almost all (92 percent) of the basic research funding obligations in mechanical engineering. In FY 1986, the Department of Defense accounted for the largest share of funding obligations in this field at 51 percent or $46 million; followed by the National Science Foundation, 24 percent or $22 million; and the Department of Energy, 17 percent or $15 million.

Federal obligations for applied research in mechanical engineering by agency: fiscal year 1986 (est.)

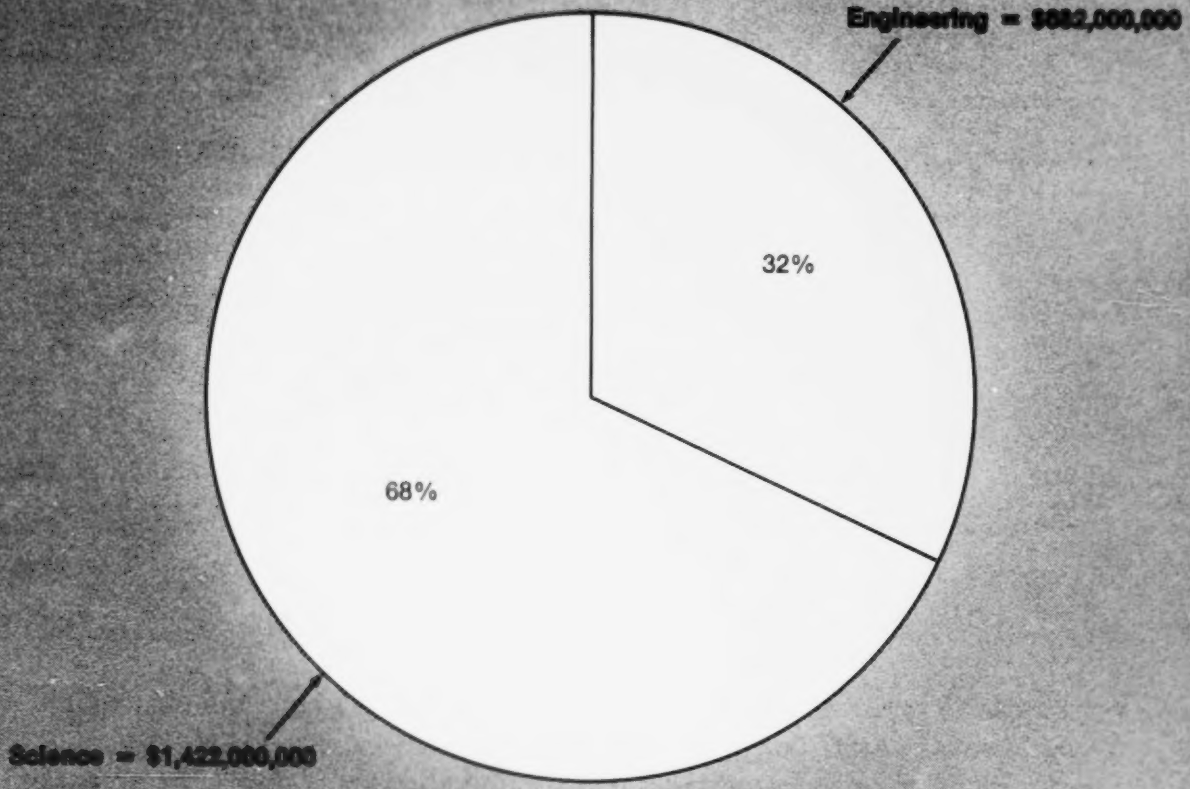


SOURCE: National Science Foundation, SRS; based on appendix table 33

- Applied research obligations for mechanical engineering are almost double those of basic research. Federal funding obligations for this field were about $174 million in FY 1986, or about 6 percent of overall engineering funding. These funding obligations have not, however, kept pace with total engineering obligations. Since FY 1976, mechanical engineering obligations in applied research have risen at an annual rate of less than 1 percent compared to a rate of more than 4 percent in total funding.
- With $133 million, the Department of Defense accounted for more than three-quarters of the FY 1986 Federal funding obligations for applied research in mechanical engineering. The National Science Foundation represented only 2 percent ($4 million) of applied research obligations in this field.

Industry

Funds for basic research in industry: 1983

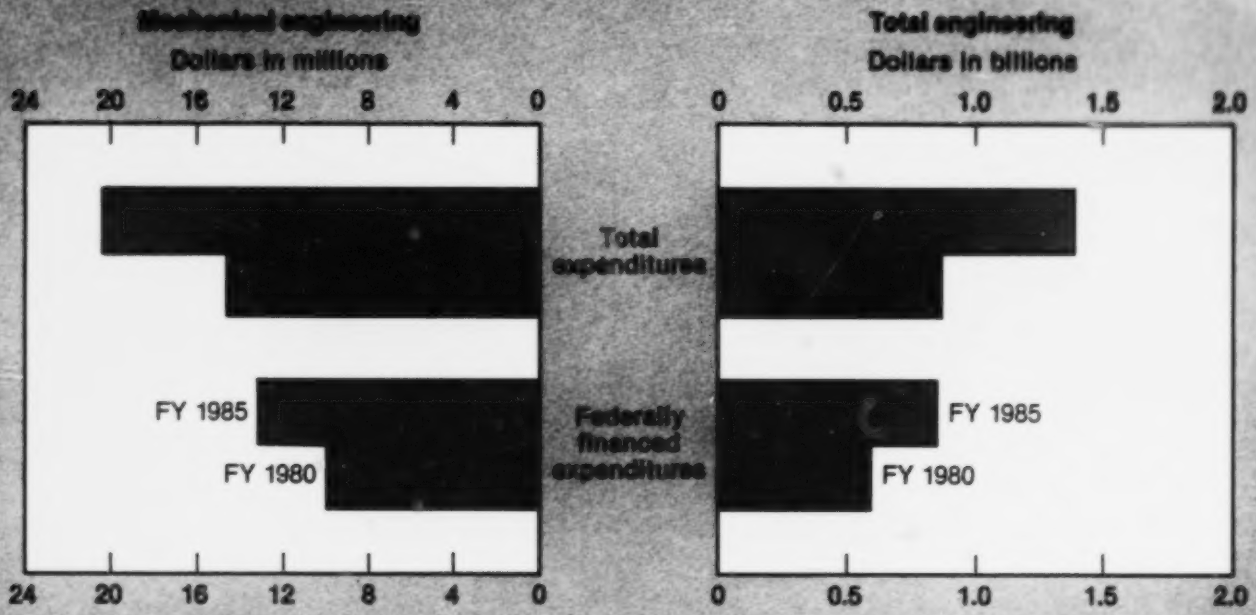


SOURCE: National Science Foundation, SRS; based on appendix table 34

- Although data on basic research funding in industry are not available for engineering subfields, they are available for engineering overall. In industry, company and Federal funding for basic research in engineering was $682 million in 1983, up from $185 million one decade earlier. Engineering represented about one-third of total funding for science and engineering in industry, a slight increase since 1973.

universities and colleges

R&D expenditures at universities and colleges: fiscal years (FYs) 1980 and 1985



SOURCE: National Science Foundation, SRS; based on appendix tables 37 and 38

- Total R&D expenditures for mechanical engineering at universities and colleges were almost $204 million in FY 1985; of this amount, $131 million was federally financed. Expenditures in this field represented about 15 percent of R&D expenditures in engineering overall. Since FY 1980 (the earliest year in which data are available), the yearly growth in expenditures for mechanical engineering has lagged behind that for total engineering: 7 percent versus 10 percent.
- At the Federal level, two agencies accounted for the bulk of R&D monies for mechanical engineering in FY 1985: the National Science Foundation (35 percent) and the Department of Defense (35 percent).
- The top 10 universities in FY 1985, in terms of R&D expenditures for mechanical engineering, represented 35 percent of overall expenditures. In order of the largest expenditure, they were Johns Hopkins University, Massachusetts Institute of Technology, Georgia Institute of Technology, Stanford University, Pennsylvania State University, University of Illinois at Urbana, University of California at Berkeley, Cornell University, Purdue University, and Texas A&M University.

appendixes

a. technical notes

b. statistical tables

appendix a

technical notes

The data contained in this report generally have been developed as part of on-going programs of the Division of Science Resources Studies at the National Science Foundation (NSF). This section identifies and briefly describes these programs and their major data collection efforts. A more detailed explanation of the various data sources available from the Division may be obtained from the specific Study Groups mentioned below.

a. science and engineering personnel

Population estimates of scientists and engineers are generated by the NSF's Scientific and Technical Personnel Data System (STPDS). These estimates provide information on the demographic, employment, and educational characteristics of scientists and engineers in the United States. Broadly speaking, a person is considered a scientist or engineer if at least two of the following criteria are met:

(1) Degree in science (including social science) or engineering;
(2) Employed in a science or engineering occupation; and/or
(3) Professional identification as a scientist or engineer based on total education and experience.

The STPDS is comprised of three subsystems, each designed to measure the characteristics of a particular subpopulation.

- **The Experienced Sample of Scientists and Engineers** examines the characteristics of individuals who were in the science and engineering (S/E) population at the time of the 1980 Census of Population. The survey is conducted biennially for the NSF by the Bureau of the Census. The 1986 survey, now in progress, is based on a sample of 64,000 individuals.
- **The Survey of Recent Science and Engineering Graduates** measures the magnitude and characteristics of those who earned degrees in science and engineering after the 1980 decennial census. The Institute of Survey Research at Temple University currently conducts this survey series for the NSF. The most recent (1986) survey focuses on the graduating classes of 1982, 1984, and 1985 and is based on a sample of 35,000 individuals.
- **The Survey of Doctorate Recipients** concentrates on scientists and engineers granted doctorates in the United States over a 42-year period. The most recent (1985) survey covered those individuals who received their doctorates between 1942 and 1984. The sample size for the 1985 survey was 57,000. This survey series has been conducted on a biennial basis for the NSF by the Office of Science and Engineering Personnel, National Academy of Sciences, since 1973.

To produce national estimates, data from the three surveys are integrated using a computer-based model. The Science and Engineering Tabulating Model (SETAB), developed for the NSF by Mathematica Policy Research, Inc., was used to generate national estimates for 1982 and 1984; it was also used as a projection model to generate preliminary estimates for 1986.

selected variable definitions

Field of science and engineering. Data on field of employment are derived from responses to questions asking the name of the specialty most closely related to the respondent's principal employment. The specialty is chosen by the respondents from a list provided in each questionnaire.

Work activities. Data on primary work activities of scientists and engineers are derived from responses to a series of questions on the survey instruments that ask individuals (a) to specify their primary and secondary work activities from a list of

10 to 15 choices, and (b) to provide a percentage distribution of their work time.

Sector of employment. Information on type of employer is also derived from survey responses. Respondents are asked to choose the category which best describes the type of organization of their principal employment.

statistical measures

Labor force participation rate. The labor force is defined as those employed and those seeking employment. The labor force participation rate (LFPR) is the ratio of those employed (E) and those unemployed (U) to the population (P).

$$LFPR = \frac{E + U}{P}$$

S/E employment rate. The S/E employment rate (ES/E) measures the ratio of those holding jobs in science or engineering (S/E) to the total employment (E) of scientists and engineers, which includes those holding nonscience or nonengineering jobs.

$$ES/E = \frac{S/E}{E}$$

Unemployment rate. The unemployment rate (UE/R) shows the ratio of those who are unemployed but seeking employment (U) to the total labor force (LF = E+U).

$$UE/R = \frac{U}{E + U}$$

S/E underemployment rate. The S/E underemployment rate (UDE) shows the ratio of those who are working part time but seeking full-time jobs (PTS) or who are working in a non-S/E job when an S/E job would be preferred (NS/E) to total employment (E).

$$UDE = \frac{PTS + NS/E}{E}$$

S/E underutilization rate. The S/E underutilization rate (UDU) shows the proportion of those in the total labor force (LF = E+U) who are either unemployed but seeking employment (U), working part time but seeking full-time jobs (PTS), or working in a non-S/E job when an S/E job would be preferred (NS/E).

$$UDU = \frac{U + PTS + NS/E}{E + U}$$

reliability of science and engineering estimates

Since the data on scientists and engineers are derived from sample surveys, the estimates are subject to both sampling and nonsampling errors. Information on the standard errors associated with these data is available upon request.

data source

For further information on the STPDS and its underlying surveys, please contact the Scientific and Technical Personnel Characteristics Studies Group, National Science Foundation, 1800 G St., N.W., Room L-611, Washington, D.C. 20550, (202) 634-4664.

b. industrial employment

Data on jobs in private industry are from the Occupational Employment Survey (OES). This survey is jointly sponsored by the Bureau of Labor Statistics and State employment agencies. The objective of the survey is to produce national, State, and local data on nonfarm wage and salary workers. The NSF contributes to the support of this survey to ensure that information is collected on scientific, engineering, and technical occupations across all industries.

industry classification

Manufacturing and nonmanufacturing industries are classified according to the 1972 Standard Industrial Classification (SIC) codes. Reporting establishments are categorized on the basis of major product or activity for the previous calendar year. Each industry being surveyed receives a separate questionnaire in which detail is limited to those occupations with significant numbers of employees in that industry.

occupational classification

This survey collects data for approximately 60 scientific, engineering, and technical occupations using three classification systems: (1) the Dictionary of Occupational Titles (DOT); (2) the 1980 Census of Population; and (3) the Standard Occupational Classification (SOC) system. Since the classification scheme for the DOT is detailed, this system is used to develop occupational categories and definitions. Summary categories are comparable to the broader categories used in the Census and the SOC.

survey cycles

The OES is conducted on a 3-year cycle. The first year concentrates on manufacturing industries; the second focuses on selected nonmanufacturing industries such as mining, construction, financial, and certain service industries; in the third year, data are collected on the trade and regulated industries in the nonmanufacturing sector.

Since this survey does not produce yearly estimates for all manufacturing and nonmanufacturing industries, the NSF has designed a methodology for estimating total industrial jobs in science and engineering on a yearly basis.

data source

For further information on the OES, please contact the Industry Studies Group, National Science Foundation, 1800 G St., N.W., Room L-602, Washington, D.C. 20550, (202) 634-4648.

c. earned degrees

1. bachelor's- and master's-degree levels

Data on earned degrees in science and engineering at the bachelor's- and master's-degree levels are collected by the Center for Education Statistics (formerly the National Center for Education Statistics) in the Department of Education. Degrees are subsequently classified in science and engineering by the NSF. These data cover earned degrees conferred in the aggregate United States, which include the 50 States, District of Columbia, and outlying areas. Degree data are compiled for the 12-month period from July through the following June.

2. doctorate degree level

Data on doctorates granted in science and engineering are from the Survey of Earned Doctorates, conducted for the NSF by the National Academy of Sciences. These data cover all types of doctoral degrees with the exception of such first-professional degrees as the J.D. or M.D. Data are collected for the aggregate United States and cover the time period from July through the following June.

data source

For further information on these surveys, please contact the Science and Engineering Education Sector Studies Group, National Science Foundation, 1800 G St., N.W., Room L-611, Washington, D.C. 20550, (202) 634-4787.

d. graduate enrollment

National estimates of graduate enrollment are from the Annual Survey of Graduate Science and Engineering Students and Postdoctorates (GSESP), currently conducted for the NSF by Quantum Research Corporation. The survey universe is composed of all institutions in the United States with departments or programs offering courses of study at the post-baccalaureate level in any S/E field. Included are medical schools and other specialized institutions offering first-professional doctorates in health-related fields. The most recent sample consisted of 618 graduate institutions, including all 325 doctorate-granting institutions and all 18 historically black universities and colleges with programs at the master's level.

data source

For further information on this survey and other data related to postsecondary S/E education, please contact the Science and Engineering Education Sector Studies Group, National Science Foundation, 1800 G St., N.W., Room L-611, Washington, D.C. 20550, (202) 634-4787.

e. federal funds for research and development

Data on Federal funding for research and development are collected as part of the Annual Survey of Federal Funds for Research and Development. This survey is now conducted for the NSF by Moshman Associates, Inc. These data cover fiscal year obligations or outlays of 34 Federal agencies and their subdivisions.

selected variable definitions

Obligations represent the amounts for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when funds were appropriated and when future payment of money is required.

Outlays represent the amounts for checks issued and cash payments made during a given period, regardless of when the funds were appropriated.

Research is systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied according to the objective of the sponsoring agency.

Basic research has the objective of gaining fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

Applied research has the objective of gaining knowledge or understanding necessary for determining the means by which a recognized and specific need may be met.

Development is systematic use of the knowledge or understanding gained from research, directed toward the production of useful materials, devices, systems, or methods including the design and development of prototypes and processes but excluding quality control, routine product testing, and production.

Demonstration activities are included as part of research or development if they are intended to prove or to test whether a technology or method works.

data source

For further information on this survey, please contact the Government Studies Group, National Science Foundation, 1800 G St., N.W., Room L-602, Washington, D.C. 20550, (202) 634-4636.

f. industrial r&d funding

Data on funding in industry are collected in the Annual Survey of Industrial Research and Development, conducted for the NSF by the Bureau of the Census. The objective of this survey is to collect information related to industrial expenditures for research and development. Funds for research and development are defined as:

> Operating expenses incurred by a company in the conduct of research and development in its

own laboratories or other company-owned or -operated facilities. Includes wages and salaries, materials and supplies consumed, property and other taxes, maintenance and repairs, depreciation, and an appropriate share of overhead, but excludes capital expenditures.

The sample used in this survey is drawn every 5 years (the latest was drawn in 1981) and consists of approximately 12,700 companies in manufacturing and in nonmanufacturing industries known to conduct or finance research and development. Approximately 1,500 companies, defined as business organizations consisting of one or more establishments under common ownership or control, are surveyed each year. These companies either (1) spend more than $1 million on research and development annually, (2) had more than 500 employees, or (3) are included to obtain complete coverage of a particular industry.

data source

For further information on this survey, please contact the Industry Studies Group, National Science Foundation, 1800 G St., N.W., Room L-602, Washington, D.C. 20550, (202) 634-4648.

g. r&d funding at universities and colleges

1. federal support to universities and colleges

These data are collected as part of the Annual Survey of Federal Support to Universities, Colleges, and Selected Nonprofit Institutions currently conducted for the NSF by Quantum Research Corporation. This survey assembles information on federal obligations to universities and colleges from the 15 agencies who provide virtually all R&D funding in science and engineering at higher education institutions. These agencies are the Agency for International Development, the Department of Commerce, the Department of Defense, the Department of Transportation, the Department of Education, the Environmental Protection Agency, the Department of Energy, the Department of Health and Human Services, the Department of Housing and Urban Development, the Department of the Interior, the Department of Labor, the National Aeronautics and Space Administration, the Nuclear Regulatory Commission, the U.S. Department of Agriculture, and the National Science Foundation.

selected variable definitions

Universities and colleges are those institutions of higher education in the United States that offer at least one year of college-level study leading toward a degree. The universe of academic institutions for this survey is derived from the Higher Education Directory, published by Higher Education Publications, Inc., and from the NSF's Institutional Technical Reference File.

Academic science/engineering includes all obligations for the following activities: Research and Development; R&D plant; facilities and equipment for instruction in sciences and engineering; fellowships, traineeships, and training grants; general support for science and engineering; and other S/E activities.

data source

For further information on this survey, please contact the Government Studies Group, National Science Foundation, 1800 G St., N.W., Room L-602, Washington, D.C. 20550, (202) 634-4636.

2. academic funding for research and development

Data on academic expenditures for research and development are collected annually in the Survey of Scientific and Engineering Expenditures at Universities and Colleges, conducted by the NSF and currently processed by Quantum Research Corporation. These data represent S/E expenditures for separately budgeted research and development. The most recent survey covered a sample of 403 higher education institutions in the United States and outlying areas which grant graduate degrees in science and engineering and/or perform at least $50,000 in separately budgeted R&D expenditures. Included in the sample are all doctorate-granting institutions, all historically black universities and colleges with R&D expenditures, 17 federally funded research and development centers, and a random sample of all other institutions.

data source

For further information on this survey, please contact the Universities and Colleges Studies Group, National Science Foundation, 1800 G St., N.W., Room L-602, Washington, D.C. 20550, (202) 634-4673.

appendix b

statistical tables

A. Human Resources

Page

Employment Status

1. Employment of scientists and engineers by field: 1976, 1978, 1980, 1982, 1984, and 1986 55
2. Scientists and engineers by field, sex, and employment status: 1976 and 1986 57
3. Scientists and engineers by field, racial/ethnic group, and employment status: 1976 and 1986 65
4. Employment of doctoral scientists and engineers by field: 1975, 1977, 1979, 1981, 1983, and 1985 79
5. Doctoral scientists and engineers by field, sex, and employment status: 1975 and 1985 80
6. Recent science and engineering bachelor's degree recipients by field, sex, and employment status: 1984 (1982 and 1983 graduates) 84
7. Recent science and engineering master's degree recipients by field, sex, and employment status: 1984 (1982 and 1983 graduates) 87
Page
8. Recent science and engineering doctoral degree recipients by field, sex, and employment status: 1985 (1983 and 1984 graduates) 90

Sector of Employment

9. Employed scientists and engineers by field, sex, and sector of employment: 1976 and 1986 94
10. Employed doctoral scientists and engineers by field, sex, and sector of employment: 1975 and 1985 102
11. Recent science and engineering degree recipients by field, degree level, and sector of employment: 1984 .. 110
11a. Recent doctoral science and engineering degree recipients by field and sector of employment: 1985 .. 112
12. Employed scientists and engineers by field, selected sector of employment, and primary work activity: 1986 114

Primary Work Activities

13. Employed scientists and engineers by field, sex, and primary work activity: 1976 and 1986 132
Page
14. Employed doctoral scientists and engineers by field, sex, and primary work activity: 1975 and 1985 144
15. Recent science and engineering degree recipients by field, degree level, and primary work activity: 1984 156
15a. Recent doctoral science and engineering degree recipients by field and primary work activity: 1985 160

Demographic Characteristics

16. Employed scientists and engineers by field and age: 1986 .. 164
17. Employed scientists and engineers by field and doctoral intensity rate: 1986 166

Labor Market Indicators

18. Selected market characteristics of scientists and engineers by field, sex, and racial/ethnic group: 1986 167
19. Selected market characteristics of doctoral scientists and enigneers by field, sex, and racial/ethnic group: 1985 .. 173
20. Selected market characteristics of recent science and engineering

Page
graduates by field and degree level: 1984 180
20a. Selected market characteristics of recent doctoral science and engineering graduates by field: 1985 182
21. Average annual salaries of scientists and engineers by field, sex, and racial/ethnic group: 1984 . . 184
22. Median annual salaries of doctoral scientists and engineers by field, sex, and racial/ethnic group: 1985 186
23. Median annual salaries of recent science and engineering graduates by field and degree level: selected years 187

Earned Degrees

24. Science and engineering bachelor's degree recipients by field and sex: 1974-84 189
25. Science and engineering master's degree recipients by field and sex: 1974-84 192
26. Science and engineering doctorate degree recipients by field and sex: 1975-85 195
27. Science and engineering doctorate degree recipients by field and citizenship status: 1975 and 1985 198

Graduate Enrollment

28. Science and engineering graduate students in all institutions by field and sex: 1977-85 199
29. Full-time science and engineering graduate students in all institutions by field and citizenship status: 1977-85 202

B. Funding

Federal Funds

30. Federal obligations for basic research by detailed field: fiscal years 1976-86 203
31. Federal obligations for basic research by detailed field and selected agency: fiscal year 1986 207
32. Federal obligations for applied research by detailed field: fiscal years 1976-86 209
33. Federal obligations for applied research by detailed field and selected agency: fiscal year 1986 213

Industry

34. Funds for basic research in industry by field of science and engineering: 1973-83 215
35. Funds for basic research in industry by type of industry and field of science and engineering: 1983 216

Universities and Colleges

36. Federal obligations to universities and colleges for research and development by field and selected agency: fiscal year 1985 217
37. R&D expenditures at universities and colleges by field: fiscal years 1975-85 219
38. Federally financed R&D expenditures at universities and colleges by field of science and engineering: fiscal years 1975-85 221
39. R&D expenditures at universities and colleges by engineering field and institution: fiscal year 1985 223

appendix table references

The appendix tables were generated from data provided by the groups listed below. Further information on these data sources are contained in appendix A, "Technical Notes."

1. Scientific and Technical Personnel Characteristics Studies Group: Tables 1-23.
2. Science and Engineering Education Sector Studies Group: Tables 24-29.
3. Government Studies Group: Tables 30-33 and 36.
4. Industry Studies Group: Tables 34 and 35.
5. Universities and Colleges Studies Group: Tables 37-39.

Table 1. Employment of scientists and engineers by field: 1976, 1978, 1980, 1982, 1984, and 1986p

Field	1976	1978	1980	1982	1984	1986p
Total, all fields	2,331,200	2,609,800	2,860,400	3,253,100	3,995,500	4,615,700
Total scientists	959,500	1,071,000	1,184,500	1,405,700	1,781,400	2,055,100
Physical scientists	188,900	208,300	215,200	227,400	254,100	293,800
Chemists	132,800	143,000	148,800	154,100	168,600	195,200
Physicists/astronomers	44,300	46,400	47,200	47,600	61,200	70,800
Other physical scientists	11,800	18,800	19,300	25,600	24,300	27,800
Mathematical scientists	48,600	53,700	64,300	79,400	100,400	116,400
Mathematicians	43,400	46,300	53,400	62,500	83,900	97,200
Statisticians	5,200	7,300	11,000	16,900	16,500	19,200
Computer specialists	119,000	177,000	207,800	299,000	436,800	505,200
Environmental scientists	54,800	68,900	77,600	87,200	98,100	112,500
Earth scientists	46,500	54,000	64,000	73,600	82,300	94,300
Oceanographers	4,400	7,300	5,100	3,400	3,200	3,700
Atmospheric scientists	3,800	7,600	8,500	10,300	12,600	14,400
Life scientists	213,500	244,100	287,500	337,100	353,300	405,900
Biological scientists	139,400	164,000	198,300	233,800	236,600	272,000
Agricultural scientists	40,700	49,600	59,300	73,800	88,700	101,900
Medical scientists	33,300	30,500	29,900	29,500	27,900	32,000
Psychologists	112,500	121,700	128,100	138,400	209,500	239,700
Social scientists	222,300	197,400	204,000	237,200	329,200	381,700
Economists	62,500	62,100	75,000	103,100	125,600	145,500
Sociologists/anthropologists	33,900	40,900	48,300	57,000	77,700	90,400
Other social scientists	125,900	94,400	80,700	77,200	125,900	145,800

Table 1 cont.

Field	1976	1978	1980	1982	1984	1986p
Total engineers	1,371,700	1,538,800	1,675,900	1,847,300	2,214,100	2,560,600
Aeronautical/astronautical	56,800	62,000	69,500	80,800	97,200	111,600
Chemical	77,500	84,200	94,500	107,700	140,100	163,100
Civil	188,200	211,700	232,100	258,200	312,700	365,700
Electrical/electronics	283,000	341,500	383,100	437,700	500,700	581,300
Industrial	NA	NA	NA	113,100	131,700	150,900
Materials	NA	NA	NA	39,200	51,300	59,300
Mechanical	276,200	299,300	322,600	357,900	445,600	513,700
Mining	NA	NA	NA	14,200	16,500	19,000
Nuclear	NA	NA	NA	18,200	22,100	25,300
Petroleum	NA	NA	NA	27,700	33,300	38,400
Other engineers	490,000	540,100	574,100	392,500	463,000	532,100

p = estimates for 1986 are preliminary data
NA = Not available

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 2. Scientists and engineers by field, sex, and employment status: 1976 and 1986p

Field and sex	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Total, all fields	2,530,100	4,905,800	2,331,200	4,615,700	2,122,100	4,002,300
Men	2,295,300	4,259,100	2,131,600	4,026,800	1,947,200	3,548,800
Women	234,800	646,700	199,700	588,900	174,900	453,600
Total scientists	1,048,400	2,186,500	959,500	2,055,100	843,800	1,617,500
Men	837,900	1,633,600	781,300	1,552,600	689,100	1,245,200
Women	210,600	552,900	178,200	502,500	154,700	372,300
Physical scientists	203,900	316,700	188,900	293,800	154,900	270,500
Men	185,400	279,800	172,700	261,200	143,600	240,600
Women	18,500	36,800	16,200	32,600	11,300	29,900
Chemists	142,500	211,300	132,800	195,200	108,000	178,300
Men	127,200	182,200	119,100	169,400	98,200	154,600
Women	15,300	29,000	13,700	25,800	9,800	23,700
Physicists/astronomers	48,400	74,900	44,300	70,800	37,000	67,400
Men	46,100	70,800	42,600	67,400	35,900	64,200
Women	2,300	4,100	1,700	3,400	1,100	3,200
Other physical scientists	13,000	30,500	11,800	27,800	10,000	24,800
Men	12,100	26,800	10,900	24,300	9,500	21,800
Women	900	3,700	800	3,500	400	3,000
Mathematical scientists	55,000	124,700	48,600	116,400	43,800	101,100
Men	40,700	97,000	37,100	91,400	33,700	79,700
Women	14,300	27,700	11,500	25,000	10,000	21,400
Mathematicians	49,200	104,700	43,400	97,200	38,800	83,600
Men	36,900	82,000	33,700	76,800	30,500	66,500
Women	12,300	22,800	9,700	20,400	8,200	17,100
Statisticians	5,800	20,000	5,200	19,200	5,000	17,500
Men	3,800	15,000	3,400	14,600	3,200	13,200
Women	2,000	4,900	1,800	4,600	1,800	4,300
Computer specialists	125,900	514,600	119,000	505,200	116,000	393,500
Men	101,600	378,700	98,400	374,100	95,100	291,600
Women	24,300	135,900	20,600	131,100	20,900	101,900

Table 2 cont.

Field and sex	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	58,300	121,000	54,800	112,500	46,600	103,100
Men	53,800	107,400	50,900	100,800	44,000	92,800
Women	4,500	13,600	3,900	11,700	2,600	10,300
Earth scientists	49,600	101,700	46,500	94,300	39,600	86,000
Men	45,400	90,000	42,900	84,400	37,300	77,300
Women	4,200	11,600	3,600	10,000	2,400	8,700
Oceanographers	4,600	4,300	4,400	3,700	3,500	3,600
Men	4,600	3,500	4,400	3,100	3,500	3,000
Women	(1)	700	(1)	600	(1)	600
Atmospheric scientists	4,100	15,000	3,800	14,400	3,400	13,500
Men	3,800	13,800	3,600	13,300	3,200	12,500
Women	300	1,200	300	1,100	200	1,000
Life scientists	230,700	440,900	213,500	405,900	198,200	337,800
Men	191,800	331,100	179,600	310,500	167,700	259,300
Women	38,900	109,800	33,900	95,400	30,500	78,500
Biological scientists	151,100	294,500	139,400	272,000	128,600	229,100
Men	124,000	214,400	115,300	202,000	106,200	172,000
Women	27,100	80,100	24,100	70,100	22,400	57,000
Agricultural scientists	44,300	110,600	40,700	101,900	39,100	79,200
Men	42,500	89,100	39,100	83,100	37,400	63,900
Women	1,800	21,400	1,600	18,800	1,600	15,300
Medical scientists	35,300	35,800	33,300	32,000	30,600	29,500
Men	25,300	27,600	25,100	25,300	24,100	23,300
Women	9,900	8,200	8,200	6,600	6,500	6,200
Psychologists	122,500	255,200	112,500	239,700	103,700	173,600
Men	81,800	146,700	76,900	139,300	71,600	106,600
Women	40,700	108,600	35,600	100,500	32,000	67,000
Social scientists	252,200	413,500	222,300	381,700	180,500	237,900
Men	182,800	292,900	165,700	275,400	133,200	174,700
Women	69,400	120,600	56,600	106,300	47,300	63,200

Table 2 cont.

Field and sex	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Economists	70,300	157,600	62,500	145,500	53,700	89,700
Men	60,500	133,300	54,600	124,200	46,300	75,100
Women	9,800	24,300	8,000	21,300	7,400	14,600
Sociologists/anthropologists	41,600	98,000	33,900	90,400	30,000	55,100
Men	26,100	56,300	22,500	53,500	19,700	35,400
Women	15,500	41,700	11,400	36,900	10,300	19,700
Other social scientists	140,300	157,900	125,900	145,800	96,900	93,100
Men	96,200	103,300	88,700	97,700	67,200	64,200
Women	44,200	54,600	37,200	48,100	29,600	28,900
Total engineers	1,481,700	2,719,300	1,371,700	2,560,600	1,278,300	2,384,900
Men	1,457,500	2,625,400	1,350,300	2,474,200	1,258,100	2,303,600
Women	24,200	93,900	21,400	86,400	20,200	81,300
Aeronautical/astronautical	62,300	117,700	56,800	111,600	55,700	105,300
Men	61,500	114,900	56,400	109,100	55,100	102,800
Women	900	2,900	400	2,600	600	2,500
Chemical	83,900	182,100	77,500	163,100	76,400	148,300
Men	81,000	170,100	75,000	152,800	73,700	138,600
Women	3,000	12,000	2,500	10,300	2,800	9,700
Civil	201,800	397,100	188,200	365,700	182,800	342,200
Men	195,900	385,300	182,800	354,900	178,100	332,300
Women	6,000	11,700	5,400	10,800	4,800	9,900
Electrical/electronics	295,600	614,700	283,000	581,300	267,900	551,600
Men	293,200	598,900	281,400	567,000	266,500	538,400
Women	2,400	15,800	1,600	14,300	1,400	13,200
Industrial	NA	156,700	NA	150,900	NA	129,400
Men	NA	150,200	NA	144,900	NA	123,800
Women	NA	6,500	NA	6,100	NA	5,700

Table 2 cont.

Field and sex	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Materials	NA	63,300	NA	59,300	NA	53,200
Men	NA	60,400	NA	56,800	NA	50,800
Women	NA	2,900	NA	2,500	NA	2,400
Mechanical	297,800	557,100	276,200	513,700	272,800	477,500
Men	295,400	543,000	273,900	501,000	270,600	465,000
Women	2,500	14,100	2,300	12,700	2,200	12,400
Mining	NA	21,200	NA	19,000	NA	17,300
Men	NA	20,400	NA	18,300	NA	16,600
Women	NA	800	NA	700	NA	700
Nuclear	NA	26,200	NA	25,300	NA	25,000
Men	NA	25,200	NA	24,400	NA	24,100
Women	NA	1,000	NA	900	NA	900
Petroleum	NA	40,700	NA	38,400	NA	34,700
Men	NA	38,300	NA	36,100	NA	32,800
Women	NA	2,500	NA	2,400	NA	1,900
Other engineers	540,100	542,500	490,000	532,100	422,700	500,500
Men	530,600	518,800	480,900	509,000	414,200	478,500
Women	9,500	23,800	9,100	23,100	8,500	22,000

Table 2 cont.

Field and sex	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Total, all fields	82,100	76,600	116,800	213,600
Men	70,700	55,700	93,000	176,600
Women	11,300	20,900	23,800	37,000
Total scientists	36,500	43,700	52,400	87,700
Men	25,700	25,300	30,800	55,600
Women	10,700	18,400	21,600	32,000
Physical scientists	5,900	5,600	9,100	17,200
Men	5,200	4,300	7,500	14,300
Women	700	1,300	1,500	3,000
Chemists	3,500	3,400	6,200	12,700
Men	3,100	2,400	4,900	10,400
Women	400	1,000	1,200	2,300
Physicists/astronomers	1,400	900	2,600	3,200
Men	1,200	800	2,300	2,600
Women	200	200	300	600
Other physical scientists	900	1,300	300	1,400
Men	800	1,200	300	1,200
Women	100	100	(1)	100
Mathematical scientists	2,500	2,600	3,800	5,700
Men	1,900	1,900	1,700	3,600
Women	700	700	2,100	2,000
Mathematicians	2,400	2,200	3,400	5,300
Men	1,800	1,700	1,400	3,400
Women	600	500	1,900	1,900
Statisticians	100	400	400	400
Men	100	200	300	200
Women	(1)	200	200	200
Computer specialists	3,000	2,900	3,900	6,500
Men	1,800	1,800	1,400	2,800
Women	1,200	1,100	2,500	3,700

Table 2 cont.

Field and sex	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Environmental scientists	1,200	3,600	2,300	4,900
Men	1,000	2,700	1,800	3,900
Women	100	900	500	1,000
Earth scientists	1,100	3,000	2,000	4,300
Men	1,000	2,300	1,500	3,400
Women	100	700	500	900
Oceanographers	(1)	400	100	200
Men	(1)	200	100	200
Women	(1)	100	(1)	(1)
Atmospheric scientists	(1)	200	200	400
Men	(1)	200	200	400
Women	(1)	(1)	(1)	(1)
Life scientists	6,300	9,100	10,900	25,900
Men	4,900	4,700	7,300	16,000
Women	1,400	4,400	3,600	9,900
Biological scientists	4,200	5,400	7,400	17,100
Men	3,800	2,200	4,900	10,200
Women	500	3,200	2,500	6,900
Agricultural scientists	1,200	3,100	2,400	5,600
Men	1,100	2,000	2,200	4,000
Women	100	1,100	200	1,600
Medical scientists	800	600	1,100	3,200
Men	(1)	400	200	1,800
Women	800	200	900	1,400
Psychologists	5,700	6,100	4,300	9,400
Men	3,300	2,900	1,600	4,500
Women	2,400	3,200	2,700	4,900
Social scientists	11,900	13,800	18,100	18,100
Men	7,600	7,000	9,500	10,600
Women	4,200	6,800	8,600	7,600

Table 2 cont.

Field and sex	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Economists	1,800	4,400	6,000	7,700
Men	1,800	3,600	4,200	5,500
Women	(1)	800	1,800	2,200
Sociologists/anthropologists	5,500	3,500	2,200	4,100
Men	3,000	1,200	700	1,600
Women	2,500	2,300	1,600	2,500
Other social scientists	4,500	5,800	9,900	6,300
Men	2,900	2,200	4,600	3,400
Women	1,700	3,700	5,200	2,800
Total engineers	45,600	32,900	64,400	125,900
Men	45,000	30,300	62,200	121,000
Women	600	2,500	2,200	4,900
Aeronautical/astronautical	2,400	700	3,200	5,400
Men	2,400	700	2,700	5,100
Women	(1)	(1)	400	300
Chemical	1,800	4,100	4,600	14,900
Men	1,600	3,600	4,400	13,700
Women	200	500	200	1,200
Civil	5,300	6,200	8,400	25,200
Men	4,900	5,700	8,200	24,700
Women	400	500	100	400
Electrical/electronics	5,100	5,600	7,600	27,800
Men	5,100	5,400	6,700	26,500
Women	(1)	100	900	1,300
Industrial	NA	1,900	NA	3,900
Men	NA	1,700	NA	3,700
Women	NA	300	NA	200

Table 2 cont.

Field and sex	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Materials	NA	1,200	NA	2,800
Men	NA	1,000	NA	2,600
Women	NA	200	NA	200
Mechanical	12,300	7,700	9,300	35,700
Men	12,300	7,200	9,200	34,900
Women	(1)	500	100	800
Mining	NA	700	NA	1,600
Men	NA	500	NA	1,500
Women	NA	100	NA	(1)
Nuclear	NA	200	NA	700
Men	NA	100	NA	600
Women	NA	(1)	NA	(1)
Petroleum	NA	1,100	NA	1,200
Men	NA	1,000	NA	1,200
Women	NA	100	NA	(1)
Other engineers	18,700	3,600	31,300	6,900
Men	18,700	3,400	30,900	6,400
Women	(1)	100	400	500

p = estimates for 1986 are preliminary data

(1) Too few cases to estimate.
NA = Not available

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 3. Scientists and engineers by field, racial/ethnic group, and employment status: 1976 and 1986p

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Total, all fields	2,530,100	4,905,800	2,331,200	4,615,700	2,122,100	4,002,300
White	2,328,100	4,365,500	2,141,900	4,106,500	1,949,700	3,562,800
Black	42,000	115,400	38,100	110,400	34,900	90,200
Asian	109,900	282,200	106,600	266,100	98,500	241,800
Native American	NA	37,000	NA	34,900	NA	27,300
Hispanic (2)	NA	120,400	NA	113,100	NA	90,700
Total scientists	1,048,400	2,186,500	959,500	2,055,100	843,800	1,617,500
White	954,400	1,949,100	870,900	1,832,900	764,200	1,447,100
Black	24,000	67,100	21,400	63,800	19,400	46,800
Asian	49,700	104,300	48,500	97,700	43,100	81,400
Native American	NA	15,800	NA	14,900	NA	9,400
Hispanic (2)	NA	56,600	NA	51,700	NA	34,900
Physical scientists	203,900	316,700	188,900	293,800	154,900	270,500
White	186,100	279,900	172,400	260,400	141,200	240,500
Black	3,400	8,100	3,200	7,500	2,400	5,900
Asian	8,200	19,600	7,600	17,700	6,400	16,400
Native American	NA	2,300	NA	1,900	NA	1,900
Hispanic (2)	NA	6,100	NA	5,400	NA	4,900
Chemists	142,500	211,300	132,800	195,200	108,000	178,300
White	130,200	184,400	121,200	171,000	98,700	157,000
Black	2,800	7,000	2,800	6,500	2,100	5,000
Asian	7,100	13,600	6,800	12,100	5,600	11,000
Native American	NA	2,000	NA	1,600	NA	1,600
Hispanic (2)	NA	4,300	NA	4,000	NA	3,500
Physicists/astronomers	48,400	74,900	44,300	70,800	37,000	67,400
White	44,000	67,100	40,500	63,600	33,400	60,700
Black	500	700	300	700	200	600
Asian	700	4,400	600	4,100	600	3,900
Native American	NA	300	NA	300	NA	300
Hispanic (2)	NA	1,500	NA	1,000	NA	1,000

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Other physical scientists	13,000	30,500	11,800	27,800	10,000	24,800
White	11,800	28,300	10,700	25,800	9,100	22,800
Black	100	400	100	300	100	300
Asian	400	1,600	200	1,500	200	1,500
Native American	NA	(3)	NA	(3)	NA	(3)
Hispanic (2)	NA	300	NA	300	NA	300
Mathematical scientists	55,000	124,700	48,600	116,400	43,800	101,100
White	50,400	107,200	44,200	100,400	39,400	86,200
Black	2,700	5,900	2,600	5,700	2,500	5,200
Asian	1,700	7,800	1,600	6,800	1,700	6,500
Native American	NA	800	NA	800	NA	700
Hispanic (2)	NA	3,600	NA	3,600	NA	3,500
Mathematicians	49,200	104,700	43,400	97,200	38,800	83,600
White	45,300	89,700	39,700	83,700	35,200	70,900
Black	2,500	5,400	2,300	5,200	2,200	4,700
Asian	1,200	6,500	1,200	5,400	1,200	5,200
Native American	NA	400	NA	400	NA	300
Hispanic (2)	NA	3,200	NA	3,200	NA	3,100
Statisticians	5,800	20,000	5,200	19,200	5,000	17,500
White	5,000	17,500	4,500	16,800	4,300	15,300
Black	300	500	200	500	300	500
Asian	500	1,400	400	1,400	400	1,200
Native American	NA	400	NA	400	NA	400
Hispanic (2)	NA	400	NA	400	NA	300
Computer specialists	125,900	514,600	119,000	505,200	116,000	393,500
White	116,800	450,100	110,700	443,200	108,000	344,300
Black	2,300	14,600	1,600	14,300	1,500	11,600
Asian	4,000	35,700	4,000	34,800	3,900	29,500
Native American	NA	3,000	NA	3,000	NA	700
Hispanic (2)	NA	12,400	NA	11,200	NA	7,500

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	58,300	121,000	54,800	112,500	46,600	103,100
White	51,600	114,600	48,300	106,500	40,700	97,300
Black	2,100	800	2,000	700	1,800	700
Asian	3,400	2,600	3,200	2,600	2,900	2,500
Native American	NA	500	NA	500	NA	500
Hispanic (2)	NA	2,500	NA	2,300	NA	2,200
Earth scientists	49,600	101,700	46,500	94,300	39,600	86,000
White	45,300	96,600	42,400	89,600	35,800	81,400
Black	200	600	200	600	200	500
Asian	2,900	1,900	2,700	1,900	2,500	1,800
Native American	NA	400	NA	400	NA	400
Hispanic (2)	NA	2,000	NA	1,900	NA	1,800
Oceanographers	4,600	4,300	4,400	3,700	3,500	3,600
White	2,700	3,900	2,600	3,400	1,800	3,300
Black	1,800	100	1,800	(3)	1,600	(3)
Asian	100	100	100	100	100	100
Native American	NA	100	NA	100	NA	100
Hispanic (2)	NA	100	NA	100	NA	100
Atmospheric scientists	4,100	15,000	3,800	14,400	3,400	13,500
White	3,600	14,100	3,400	13,500	3,000	12,600
Black	(3)	200	(3)	200	(3)	200
Asian	400	600	400	600	400	600
Native American	NA	(3)	NA	(3)	NA	(3)
Hispanic (2)	NA	400	NA	300	NA	300
Life scientists	230,700	440,900	213,500	405,900	198,200	337,800
White	217,500	403,100	200,700	371,200	186,100	308,600
Black	4,900	8,500	4,900	8,000	4,700	6,500
Asian	5,600	16,400	5,300	14,600	5,400	13,200
Native American	NA	3,500	NA	3,500	NA	2,200
Hispanic (2)	NA	10,400	NA	9,500	NA	7,500

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Biological scientists	151,100	294,500	139,400	272,000	128,600	229,100
White	142,400	266,700	131,000	246,700	120,700	207,700
Black	3,000	7,000	3,000	6,700	2,900	5,400
Asian	3,900	12,000	3,700	10,700	3,900	9,700
Native American	NA	1,500	NA	1,500	NA	800
Hispanic (2)	NA	8,000	NA	7,400	NA	5,800
Agricultural scientists	44,300	110,600	40,700	101,900	39,100	79,200
White	42,300	103,100	38,800	94,900	37,200	73,600
Black	500	1,100	500	900	400	700
Asian	900	2,600	900	2,300	900	2,000
Native American	NA	1,800	NA	1,800	NA	1,200
Hispanic (2)	NA	1,900	NA	1,600	NA	1,400
Medical scientists	35,300	35,800	33,300	32,000	30,600	29,500
White	32,700	33,300	30,900	29,600	28,200	27,300
Black	1,400	400	1,400	400	1,400	300
Asian	700	1,800	700	1,600	600	1,500
Native American	NA	200	NA	200	NA	200
Hispanic (2)	NA	500	NA	500	NA	300
Psychologists	122,500	255,200	112,500	239,700	103,700	173,600
White	114,100	235,600	105,100	221,200	97,100	161,400
Black	3,800	8,900	3,800	8,400	3,700	6,000
Asian	1,000	3,000	1,000	2,800	700	2,000
Native American	NA	3,100	NA	3,100	NA	2,400
Hispanic (2)	NA	6,500	NA	5,900	NA	1,900
Social scientists	252,200	413,500	222,300	381,700	180,500	237,900
White	217,800	358,600	189,400	330,000	151,600	208,700
Black	4,700	20,400	3,300	19,200	2,900	10,900
Asian	25,900	19,300	25,800	18,500	22,100	11,400
Native American	NA	2,600	NA	2,000	NA	1,000
Hispanic (2)	NA	15,000	NA	13,700	NA	7,300

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Economists	70,300	157,600	62,500	145,500	53,700	89,700
White	62,300	138,700	54,500	127,800	46,000	80,500
Black	800	5,600	800	5,300	700	2,500
Asian	6,700	8,600	6,700	8,000	6,600	4,200
Native American	NA	1,200	NA	1,200	NA	500
Hispanic (2)	NA	3,400	NA	3,200	NA	2,100
Sociologists/anthropologists	41,600	98,000	33,900	90,400	30,000	55,100
White	37,900	82,600	30,200	75,600	26,200	46,700
Black	500	5,900	500	5,700	400	3,000
Asian	1,100	5,200	1,100	5,000	1,200	4,200
Native American	NA	400	NA	400	NA	200
Hispanic (2)	NA	6,000	NA	5,800	NA	2,200
Other social scientists	140,300	157,900	125,900	145,800	96,900	93,100
White	117,700	137,400	104,700	126,500	79,500	81,500
Black	3,400	8,900	2,000	8,200	1,800	5,400
Asian	18,000	5,500	18,000	5,400	14,400	3,000
Native American	NA	900	NA	400	NA	300
Hispanic (2)	NA	5,600	NA	4,700	NA	3,000
Total engineers	1,481,700	2,719,300	1,371,700	2,560,600	1,278,300	2,384,900
White	1,373,700	2,416,400	1,271,000	2,273,500	1,185,500	2,115,800
Black	18,100	48,200	16,700	46,600	15,500	43,400
Asian	60,200	177,900	58,100	168,400	55,400	160,400
Native American	NA	21,200	NA	20,100	NA	17,900
Hispanic (2)	NA	63,900	NA	61,400	NA	55,800
Aeronautical/astronautical	62,300	117,700	56,800	111,600	55,700	105,300
White	59,700	107,700	54,100	101,700	52,900	96,900
Black	300	1,500	300	1,500	300	1,300
Asian	1,600	7,000	1,600	7,000	1,700	5,900
Native American	NA	300	NA	300	NA	300
Hispanic (2)	NA	1,700	NA	1,700	NA	1,400

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Chemical	83,900	182,100	77,500	163,100	76,400	148,300
White	78,200	157,900	72,200	140,900	71,100	128,100
Black	1,500	1,900	1,500	1,800	1,500	1,600
Asian	2,900	16,000	2,400	14,800	2,400	14,300
Native American	NA	1,400	NA	1,200	NA	100
Hispanic (2)	NA	4,300	NA	3,700	NA	3,600
Civil	201,800	397,100	188,200	365,700	182,800	342,200
White	177,400	337,100	165,700	310,000	162,500	290,900
Black	1,700	6,500	1,600	6,100	1,800	5,700
Asian	15,100	37,300	14,800	34,100	14,800	33,000
Native American	NA	3,200	NA	3,000	NA	2,900
Hispanic (2)	NA	11,500	NA	10,800	NA	10,000
Electrical/electronics	295,600	614,700	283,000	581,300	267,900	551,600
White	274,800	534,700	262,500	504,400	248,800	478,500
Black	3,100	15,100	2,900	14,400	2,600	13,400
Asian	14,000	46,300	13,800	44,600	12,700	42,100
Native American	NA	6,700	NA	6,700	NA	6,600
Hispanic (2)	NA	15,200	NA	14,600	NA	13,300
Industrial	NA	156,700	NA	150,900	NA	129,400
White	NA	144,800	NA	139,500	NA	118,400
Black	NA	3,800	NA	3,700	NA	3,600
Asian	NA	4,400	NA	3,900	NA	3,900
Native American	NA	1,100	NA	1,100	NA	1,100
Hispanic (2)	NA	4,400	NA	4,300	NA	3,600
Materials	NA	63,300	NA	59,300	NA	53,200
White	NA	56,100	NA	52,600	NA	47,200
Black	NA	1,100	NA	1,000	NA	600
Asian	NA	4,800	NA	4,400	NA	4,100
Native American	NA	400	NA	400	NA	400
Hispanic (2)	NA	200	NA	200	NA	200

Table 3 cont.

Field and racial/ethnic group	Employment status					
	Total population		Total employed		Employed in S/E	
	1976	1986p	1976	1986p	1976	1986p
Mechanical	297,800	557,100	276,200	513,700	272,800	477,500
White	277,600	504,500	258,700	464,500	255,300	430,900
Black	2,400	6,300	2,400	6,000	2,200	5,700
Asian	10,500	32,700	9,700	30,600	9,600	28,700
Native American	NA	4,400	NA	4,400	NA	4,200
Hispanic (2)	NA	11,900	NA	11,600	NA	9,900
Mining	NA	21,200	NA	19,000	NA	17,300
White	NA	19,900	NA	17,800	NA	16,700
Black	NA	200	NA	100	NA	100
Asian	NA	400	NA	400	NA	400
Native American	NA	600	NA	600	NA	(3)
Hispanic (2)	NA	200	NA	100	NA	100
Nuclear	NA	26,200	NA	25,300	NA	25,000
White	NA	23,800	NA	23,100	NA	22,700
Black	NA	200	NA	200	NA	200
Asian	NA	2,000	NA	1,900	NA	1,900
Native American	NA	(3)	NA	(3)	NA	(3)
Hispanic (2)	NA	200	NA	200	NA	200
Petroleum	NA	40,700	NA	38,400	NA	34,700
White	NA	36,600	NA	35,000	NA	31,500
Black	NA	400	NA	400	NA	400
Asian	NA	1,000	NA	1,000	NA	900
Native American	NA	1,500	NA	800	NA	600
Hispanic (2)	NA	1,200	NA	1,200	NA	1,200
Other engineers	540,100	542,500	490,000	532,100	422,700	500,500
White	506,100	493,400	457,800	484,100	394,900	453,900
Black	9,200	11,500	8,000	11,400	7,000	10,900
Asian	16,000	26,000	15,800	25,800	14,300	25,300
Native American	NA	1,700	NA	1,600	NA	1,600
Hispanic (2)	NA	13,200	NA	13,100	NA	12,500

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Total, all fields	82,100	76,600	116,800	213,600
White	73,300	62,300	112,900	196,800
Black	2,400	2,900	1,600	2,000
Asian	1,600	6,400	1,600	9,600
Native American	NA	1,200	NA	900
Hispanic (2)	NA	2,500	NA	4,800
Total scientists	36,500	43,700	52,400	87,700
White	33,500	37,800	50,000	78,400
Black	1,300	1,900	1,300	1,500
Asian	700	2,200	500	4,400
Native American	NA	500	NA	400
Hispanic (2)	NA	1,000	NA	3,900
Physical scientists	5,900	5,600	9,100	17,200
White	5,300	4,300	8,300	15,200
Black	200	400	(3)	200
Asian	400	400	100	1,500
Native American	NA	(3)	NA	400
Hispanic (2)	NA	300	NA	500
Chemists	3,500	3,400	6,200	12,700
White	3,300	2,500	5,700	11,000
Black	(3)	400	(3)	100
Asian	200	300	100	1,200
Native American	NA	(3)	NA	400
Hispanic (2)	NA	(3)	NA	200
Physicists/astronomers	1,400	900	2,600	3,200
White	1,200	600	2,300	2,900
Black	100	(3)	(3)	(3)
Asian	100	100	(3)	200
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	200	NA	300

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Other physical scientists	900	1,300	300	1,400
White	800	1,300	300	1,300
Black	(3)	(3)	(3)	100
Asian	100	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Mathematical scientists	2,500	2,600	3,800	5,700
White	2,500	1,700	3,600	5,100
Black	(3)	100	200	100
Asian	(3)	700	(3)	400
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Mathematicians	2,400	2,200	3,400	5,300
White	2,400	1,300	3,200	4,700
Black	(3)	100	200	100
Asian	(3)	700	(3)	400
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Statisticians	100	400	400	400
White	100	400	400	300
Black	(3)	(3)	(3)	(3)
Asian	(3)	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Computer specialists	3,000	2,900	3,900	6,500
White	2,400	2,300	3,800	4,600
Black	600	200	100	100
Asian	(3)	300	100	600
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	1,200

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Environmental scientists	1,200	3,600	2,300	4,900
White	900	3,400	2,300	4,700
Black	(3)	(3)	(3)	100
Asian	200	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	100
Earth scientists	1,100	3,000	2,000	4,300
White	900	2,800	2,000	4,200
Black	(3)	(3)	(3)	(3)
Asian	200	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	(3)
Oceanographers	(3)	400	100	200
White	(3)	400	100	100
Black	(3)	(3)	(3)	100
Asian	(3)	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Atmospheric scientists	(3)	200	200	400
White	(3)	200	200	400
Black	(3)	(3)	(3)	(3)
Asian	(3)	(3)	(3)	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	100
Life scientists	6,300	9,100	10,900	25,900
White	6,200	8,000	10,600	23,800
Black	(3)	100	(3)	400
Asian	(3)	500	200	1,200
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	700

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Biological scientists	4,200	5,400	7,400	17,100
White	4,200	4,500	7,200	15,500
Black	(3)	(3)	(3)	300
Asian	(3)	400	200	900
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	500
Agricultural scientists	1,200	3,100	2,400	5,600
White	1,200	2,900	2,300	5,200
Black	(3)	100	(3)	100
Asian	(3)	100	(3)	100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	200
Medical scientists	800	600	1,100	3,200
White	800	600	1,100	3,100
Black	(3)	(3)	(3)	(3)
Asian	(3)	(3)	(3)	100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Psychologists	5,700	6,100	4,300	9,400
White	4,700	5,800	4,300	8,600
Black	(3)	300	(3)	200
Asian	(3)	(3)	(3)	200
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	400
Social scientists	11,900	13,800	18,100	18,100
White	11,500	12,300	17,000	16,400
Black	400	700	1,000	400
Asian	(3)	100	100	700
Native American	NA	500	NA	(3)
Hispanic (2)	NA	400	NA	1,000

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Economists	1,800	4,400	6,000	7,700
White	1,800	4,200	6,000	6,700
Black	(3)	200	(3)	100
Asian	(3)	(3)	(3)	600
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	100
Sociologists/anthropologists	5,500	3,500	2,200	4,100
White	5,500	3,300	2,200	3,600
Black	(3)	(3)	(3)	200
Asian	(3)	100	100	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	300
Other social scientists	4,500	5,800	9,900	6,300
White	4,100	4,800	8,900	6,100
Black	400	500	1,000	100
Asian	(3)	(3)	(3)	(3)
Native American	NA	500	NA	(3)
Hispanic (2)	NA	300	NA	600
Total engineers	45,600	32,900	64,400	125,900
White	39,800	24,500	63,000	118,400
Black	1,100	1,100	200	600
Asian	1,000	4,300	1,100	5,200
Native American	NA	700	NA	500
Hispanic (2)	NA	1,500	NA	900
Aeronautical/astronautical	2,400	700	3,200	5,400
White	2,400	600	3,200	5,400
Black	(3)	(3)	(3)	(3)
Asian	(3)	(3)	(3)	100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Chemical	1,800	4,100	4,600	14,900
White	1,400	2,800	4,600	14,100
Black	(3)	100	(3)	(3)
Asian	400	800	(3)	400
Native American	NA	100	NA	100
Hispanic (2)	NA	500	NA	(3)
Civil	5,300	6,200	8,400	25,200
White	3,600	4,600	8,100	22,500
Black	(3)	300	(3)	100
Asian	(3)	900	300	2,300
Native American	NA	(3)	NA	200
Hispanic (2)	NA	400	NA	300
Electrical/electronics	5,100	5,600	7,600	27,800
White	5,100	4,100	7,200	26,200
Black	(3)	400	100	300
Asian	(3)	600	200	1,100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	300	NA	400
Industrial	NA	1,900	NA	3,900
White	NA	1,600	NA	3,800
Black	NA	100	NA	(3)
Asian	NA	300	NA	100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	(3)
Materials	NA	1,200	NA	2,800
White	NA	1,000	NA	2,500
Black	NA	(3)	NA	(3)
Asian	NA	100	NA	300
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)

Table 3 cont.

Field and racial/ethnic group	Employment status			
	Unemployed, seeking		Outside the labor force	
	1976	1986p	1976	1986p
Mechanical	12,300	7,700	9,300	35,700
White	10,200	5,900	8,700	34,200
Black	(3)	200	(3)	100
Asian	200	1,400	700	700
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	100
Mining	NA	700	NA	1,600
White	NA	600	NA	1,400
Black	NA	(3)	NA	100
Asian	NA	(3)	NA	(3)
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	100	NA	(3)
Nuclear	NA	200	NA	700
White	NA	100	NA	600
Black	NA	(3)	NA	(3)
Asian	NA	(3)	NA	100
Native American	NA	(3)	NA	(3)
Hispanic (2)	NA	(3)	NA	(3)
Petroleum	NA	1,100	NA	1,200
White	NA	500	NA	1,100
Black	NA	(3)	NA	(3)
Asian	NA	(3)	NA	(3)
Native American	NA	600	NA	100
Hispanic (2)	NA	(3)	NA	(3)
Other engineers	18,700	3,600	31,300	6,900
White	17,100	2,700	31,300	6,700
Black	1,100	100	100	(3)
Asian	300	100	(3)	100
Native American	NA	(3)	NA	100
Hispanic (2)	NA	(3)	NA	100

p = estimates for 1986 are preliminary data
(1) Detail will not add to total because
a) racial and ethnic groups are not mutually exclusive and
b) total includes other and no report
(2) Includes members of all racial groups
(3) Too few cases to estimate
NA = Not available

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 4. Employment of doctoral scientists and engineers by field: 1975, 1977, 1979, 1981, 1983 and 1985

Field	1975	1977	1979	1981	1983	1985
Total, all fields	255,900	285,100	314,300	344,000	369,300	400,400
Total scientists	213,500	240,000	263,900	286,900	307,800	334,500
Physical scientists	54,600	57,500	60,200	63,100	64,000	67,500
Chemists	35,800	37,400	39,700	41,900	41,300	43,700
Physicists/astronomers	18,800	20,100	20,600	21,200	22,700	23,700
Mathematical scientists	13,600	14,600	15,300	15,600	16,400	16,800
Mathematicans	11,900	12,800	12,800	13,000	13,600	13,900
Statisticians	1,700	1,800	2,400	2,500	2,800	2,800
Computer specialists	3,500	5,800	6,700	9,100	12,200	15,000
Environmental scientists	12,100	13,000	14,600	15,900	16,500	17,300
Earth scientists	9,500	9,700	11,100	12,000	12,500	13,200
Oceanographers	1,300	1,600	1,700	1,800	1,700	2,000
Atmospheric scientists	1,300	1,700	1,800	2,100	2,200	2,100
Life scientists	63,300	70,500	78,900	84,900	92,800	101,800
Biological scientists	39,000	42,100	45,600	49,600	55,200	59,900
Agricultural scientists	11,000	12,100	12,800	13,500	14,500	15,500
Medical scientists	13,300	16,400	20,500	21,800	23,100	26,500
Psychologists	30,000	33,700	37,800	42,800	46,600	52,200
Social scientists	36,300	44,900	50,500	55,500	59,300	64,000
Economists	11,800	13,000	14,000	16,000	17,000	17,900
Sociologists/anthropologists	7,900	9,500	10,200	11,000	12,100	12,700
Other social scientists	16,600	22,500	26,300	28,500	30,300	33,400
Total engineers	42,400	45,100	50,300	57,000	61,500	65,900
Aeronautical/astronautical	2,000	2,000	2,400	2,500	3,700	3,800
Chemical	5,400	5,600	6,200	7,100	7,000	7,100
Civil	3,800	4,100	5,200	6,100	5,300	6,400
Electrical/electronics	8,500	8,300	8,600	10,600	12,700	14,300
Materials science	4,800	5,200	5,700	6,100	7,400	7,300
Mechanical	4,000	4,600	5,200	5,400	5,700	6,600
Nuclear	1,700	1,800	2,300	2,100	2,300	2,400
Systems design	2,400	3,600	4,900	5,300	3,900	3,700
Other engineers	9,800	9,900	9,900	11,800	13,600	14,300

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 5. Doctoral scientists and engineers by field, sex, and employment status: 1975 and 1985

Field and sex	Employment status									
	Total population		Total employed		Employed in S/E		Unemployed, seeking		Outside the labor force	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Total, all fields	270,400	424,600	255,900	400,400	240,200	365,400	2,500	3,400	11,900	20,800
Men	244,800	360,600	233,900	341,900	219,700	312,900	1,800	2,300	9,200	16,400
Women	25,500	64,000	22,100	58,500	20,500	52,500	700	1,100	2,800	4,400
Total scientists	226,900	356,700	213,500	334,500	199,600	303,900	2,200	3,100	11,200	19,200
Men	201,600	294,300	191,700	277,500	179,300	252,900	1,500	2,000	8,400	14,800
Women	25,200	62,500	21,800	57,000	20,300	51,100	700	1,100	2,700	4,400
Physical scientists	58,500	73,100	54,600	67,500	50,000	61,300	800	600	3,100	5,000
Men	55,300	67,800	52,100	62,800	47,800	57,100	700	500	2,600	4,500
Women	3,100	5,300	2,500	4,700	2,200	4,200	100	100	500	500
Chemists	38,500	48,100	35,800	43,700	32,600	39,900	400	500	2,200	3,900
Men	35,900	43,800	33,800	39,900	30,800	36,500	300	400	1,800	3,500
Women	2,600	4,300	2,100	3,800	1,800	3,400	100	100	400	400
Physicists/astronomers	20,000	25,000	18,800	23,700	17,400	21,400	400	100	800	1,100
Men	19,400	24,000	18,300	22,900	17,000	20,600	300	100	800	1,000
Women	600	1,000	500	900	400	800	(1)	(1)	100	100
Mathematical scientists	14,200	17,500	13,600	16,800	12,800	15,500	100	100	500	600
Men	13,200	15,800	12,700	15,200	12,000	14,000	100	100	400	500
Women	1,000	1,700	900	1,600	800	1,400	(1)	(1)	100	100
Mathematicans	12,400	14,600	11,900	13,900	11,100	12,800	100	100	500	600
Men	11,500	13,200	11,000	12,700	10,400	11,600	100	100	400	500
Women	900	1,400	800	1,200	700	1,100	(1)	(1)	100	100
Statisticians	1,800	2,900	1,700	2,800	1,700	2,700	(1)	(1)	(1)	100
Men	1,700	2,500	1,700	2,500	1,600	2,400	(1)	(1)	(1)	(1)
Women	100	300	100	300	100	300	(1)	(1)	(1)	(1)
Computer specialists	3,500	15,000	3,500	15,000	3,500	14,800	(1)	(1)	(1)	(1)
Men	3,400	13,400	3,400	13,300	3,300	13,200	(1)	(1)	(1)	(1)
Women	200	1,600	100	1,600	100	1,600	(1)	(1)	(1)	(1)

Table 5 cont.

Field and sex	Employment status									
	Total population		Total employed		Employed in S/E		Unemployed, seeking		Outside the labor force	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Environmental scientists	12,500	18,000	12,100	17,300	11,800	16,700	100	100	300	600
Men	12,100	16,800	11,800	16,200	11,500	15,600	100	100	300	500
Women	400	1,100	300	1,100	300	1,000	(1)	(1)	(1)	(1)
Earth scientists	9,800	13,800	9,500	13,200	9,200	12,700	100	100	200	500
Men	9,500	13,000	9,300	12,400	9,000	12,000	(1)	100	200	500
Women	300	800	200	800	200	700	(1)	(1)	(1)	(1)
Oceanographers	1,300	2,000	1,300	2,000	1,300	1,900	(1)	(1)	(1)	(1)
Men	1,300	1,700	1,200	1,700	1,200	1,600	(1)	(1)	(1)	(1)
Women	100	300	100	200	100	200	(1)	(1)	(1)	(1)
Atmospheric scientists	1,400	2,200	1,300	2,100	1,300	2,100	(1)	(1)	(1)	(1)
Men	1,300	2,100	1,300	2,000	1,300	2,000	(1)	(1)	(1)	(1)
Women	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)
Life scientists	68,300	109,900	63,300	101,800	61,000	96,600	700	1,200	4,300	6,900
Men	59,200	87,900	55,800	82,100	53,800	78,100	400	800	3,000	4,900
Women	9,100	22,000	7,500	19,700	7,200	18,500	300	400	1,300	1,900
Biological scientists	42,600	65,100	39,000	59,900	37,300	56,200	600	900	3,000	4,300
Men	35,500	50,700	33,300	47,200	31,800	44,400	300	600	2,000	2,900
Women	7,100	14,400	5,800	12,600	5,500	11,800	300	300	1,000	1,400
Agricultural scientists	11,500	16,900	11,000	15,500	10,600	14,800	(1)	200	500	1,200
Men	11,400	15,900	10,800	14,700	10,400	14,000	(1)	100	500	1,100
Women	200	900	100	800	100	800	(1)	(1)	(1)	100
Medical scientists	14,100	27,900	13,300	26,500	13,100	25,600	(1)	100	800	1,400
Men	12,400	21,200	11,700	20,200	11,600	19,700	(1)	100	600	900
Women	1,800	6,700	1,600	6,200	1,600	5,900	(1)	(1)	200	400
Psychologists	31,300	54,900	30,000	52,200	28,600	48,000	200	400	1,100	2,200
Men	24,400	37,100	23,700	35,600	22,600	32,600	100	200	600	1,400
Women	6,900	17,700	6,300	16,600	6,000	15,400	100	200	500	900

Table 5 cont.

Field and sex	Employment status									
	Total population		Total employed		Employed in S/E		Unemployed, seeking		Outside the labor force	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Social scientists	38,600	68,500	36,300	64,000	31,800	51,100	300	600	2,000	3,800
Men	34,000	55,500	32,200	52,200	28,200	42,100	200	300	1,600	2,900
Women	4,600	13,000	4,100	11,800	3,600	8,900	100	300	400	900
Economists	12,600	19,100	11,800	17,900	10,100	14,700	(1)	(1)	800	1,100
Men	11,900	17,200	11,200	16,200	9,600	13,300	(1)	(1)	700	1,000
Women	700	1,900	600	1,700	600	1,400	(1)	(1)	100	100
Sociologists/anthropologists	8,500	13,900	7,900	12,700	7,400	10,300	100	300	400	1,000
Men	6,600	9,800	6,300	9,100	5,900	7,400	100	100	300	700
Women	1,900	4,100	1,700	3,600	1,600	2,900	100	200	200	300
Other social scientists	17,500	35,500	16,600	33,400	14,300	26,100	200	300	800	1,700
Men	15,500	28,500	14,800	27,000	12,800	21,400	100	200	600	1,300
Women	2,000	7,000	1,800	6,400	1,500	4,600	100	100	100	400
Total engineers	43,500	67,900	42,400	65,900	40,700	61,500	300	400	800	1,700
Men	43,200	66,400	42,200	64,400	40,400	60,000	300	300	700	1,700
Women	300	1,500	200	1,500	200	1,400	(1)	(1)	(1)	(1)
Aeronautical/astronautical	2,100	3,800	2,000	3,800	1,900	3,600	(1)	(1)	(1)	(1)
Men	2,000	3,800	2,000	3,700	1,900	3,500	(1)	(1)	(1)	(1)
Women	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)
Chemical	5,600	7,700	5,400	7,100	5,000	6,300	100	100	200	400
Men	5,600	7,600	5,300	7,000	5,000	6,200	100	100	200	400
Women	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)
Civil	3,800	6,700	3,800	6,400	3,600	5,900	(1)	(1)	(1)	300
Men	3,800	6,600	3,800	6,300	3,600	5,800	(1)	(1)	(1)	300
Women	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)

Table 5 cont.

Field and sex	Employment status									
	Total population		Total employed		Employed in S/E		Unemployed, seeking		Outside the labor force	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Electrical/electronics	8,800	14,600	8,500	14,300	8,200	13,500	100	100	100	200
Men	8,700	14,200	8,500	13,900	8,200	13,200	100	100	100	200
Women	(1)	300	(1)	300	(1)	300	(1)	(1)	(1)	(1)
Materials science	5,000	7,400	4,800	7,300	4,500	6,900	(1)	(1)	100	200
Men	4,900	7,200	4,700	7,000	4,500	6,700	(1)	(1)	100	200
Women	100	300	(1)	200	(1)	200	(1)	(1)	(1)	(1)
Mechanical	4,100	6,800	4,000	6,600	3,900	6,100	(1)	(1)	(1)	200
Men	4,100	6,700	4,000	6,500	3,900	6,000	(1)	(1)	(1)	200
Women	(1)	100	(1)	100	(1)	100	(1)	(1)	(1)	(1)
Nuclear	1,700	2,400	1,700	2,400	1,700	2,200	(1)	(1)	(1)	(1)
Men	1,700	2,300	1,700	2,300	1,700	2,200	(1)	(1)	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Systems design	2,400	3,700	2,400	3,700	2,400	3,400	(1)	(1)	(1)	(1)
Men	2,400	3,500	2,400	3,500	2,400	3,200	(1)	(1)	(1)	(1)
Women	(1)	200	(1)	200	(1)	200	(1)	(1)	(1)	(1)
Other engineers	10,000	14,800	9,800	14,300	9,400	13,600	(1)	(1)	200	400
Men	10,000	14,400	9,800	14,000	9,400	13,300	(1)	(1)	200	400
Women	100	400	100	400	100	400	(1)	(1)	(1)	(1)

(1) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 6. Recent science and engineering bachelor's degree recipients by field, sex, and employment status: 1984 (1982 & 1983 graduates)

Field and sex	Employment status					Full-time graduate students (2)
	Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	
Total, all fields	422,600	383,100	236,500	22,500	17,000	112,100
Men	260,600	241,900	168,000	12,200	6,500	67,800
Women	162,100	141,300	68,500	10,300	10,500	44,300
Total scientists	298,600	266,300	132,900	17,900	14,400	99,900
Men	153,400	140,300	78,000	8,800	4,400	57,200
Women	145,100	126,000	54,900	9,100	10,000	42,700
Physical scientists	16,400	14,300	10,400	1,300	700	12,900
Men	10,700	9,400	6,800	900	400	9,500
Women	5,700	4,900	3,600	400	300	3,400
Chemists	10,000	8,700	6,100	800	500	9,700
Men	5,400	4,700	3,100	500	300	6,800
Women	4,600	4,100	3,000	300	200	2,900
Physicists/astronomers	4,400	3,900	3,100	400	100	3,000
Men	4,000	3,500	2,900	300	100	2,600
Women	500	400	200	100	(3)	400
Other physical scientists	2,000	1,700	1,100	100	100	300
Men	1,300	1,300	800	100	(3)	200
Women	600	500	300	(3)	100	100
Mathematical scientists	16,500	15,300	11,400	500	700	4,000
Men	9,000	8,500	6,200	200	300	2,600
Women	7,500	6,800	5,100	300	400	1,300
Computer scientists	39,700	38,000	34,300	900	800	2,200
Men	24,900	24,100	21,600	600	300	1,600
Women	14,800	13,900	12,700	300	500	600
Environmental scientists	11,000	9,500	5,800	900	600	3,800
Men	8,200	7,200	4,500	600	500	2,900
Women	2,800	2,400	1,400	300	100	900
Life scientists	56,400	49,300	30,000	4,000	3,100	34,100
Men	27,400	24,500	14,800	1,800	1,000	20,100
Women	29,000	24,800	15,200	2,200	2,100	14,000
Biological scientists	35,100	30,200	17,200	2,800	2,200	30,000
Men	13,700	12,000	6,100	1,000	700	17,200
Women	21,500	18,200	11,200	1,800	1,500	12,800

Table 6 cont.

Field and sex	Employment status					Full-time graduate students (2)
	Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	
Agricultural scientists	21,200	19,100	12,700	1,200	900	4,100
Men	13,700	12,600	8,700	800	300	2,900
Women	7,500	6,600	4,000	400	600	1,200
Psychologists	48,600	42,000	10,400	3,700	2,900	16,000
Men	14,500	12,500	3,800	1,400	600	7,300
Women	34,000	29,500	6,600	2,200	2,300	8,700
Social scientists	110,100	97,700	30,700	6,600	5,700	26,800
Men	58,700	54,000	20,300	3,300	1,400	13,200
Women	51,400	43,700	10,400	3,400	4,300	13,600
Economists	32,700	29,800	11,700	1,400	1,500	6,800
Men	23,800	21,200	8,500	1,400	1,200	4,800
Women	8,800	8,600	3,100	(3)	300	2,000
Sociologists/anthropologists	30,700	27,200	6,100	2,100	1,400	5,600
Men	10,100	9,800	3,600	200	(3)	1,200
Women	20,600	17,400	2,500	1,800	1,400	4,400
Other social scientists	46,700	40,800	12,900	3,100	2,800	14,400
Men	24,800	23,000	8,200	1,600	200	7,200
Women	21,900	17,800	4,700	1,500	2,600	7,200
Total engineers	124,000	116,900	103,600	4,600	2,600	12,200
Men	107,100	101,600	90,000	3,500	2,100	10,500
Women	16,900	15,300	13,700	1,100	500	1,700
Aeronautical/astronautical	3,600	3,500	2,900	100	100	600
Men	3,200	3,100	2,500	100	100	600
Women	400	400	400	(3)	(3)	(3)
Chemical	9,800	9,100	7,600	500	200	2,400
Men	7,400	6,900	5,700	400	100	1,900
Women	2,400	2,200	1,900	100	100	500
Civil	18,300	17,500	15,700	600	200	1,300
Men	16,200	15,600	14,000	500	200	1,100
Women	2,100	1,900	1,700	100	(3)	200
Electrical/electronics	34,900	33,300	31,100	1,100	400	2,500
Men	31,600	30,200	28,200	1,000	400	2,300
Women	3,300	3,200	2,900	100	(3)	100

Table 6 cont.

Field and sex	Employment status					Full-time graduate students (2)
	Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	
Industrial	7,200	6,700	5,100	200	300	300
Men	5,100	5,000	3,800	(3)	100	200
Women	2,000	1,600	1,400	200	200	100
Materials	2,600	2,400	2,200	100	100	700
Men	2,100	1,900	1,700	100	100	600
Women	500	500	500	(3)	(3)	100
Mechanical	29,600	27,600	24,800	1,300	800	2,000
Men	26,200	24,500	22,000	1,000	700	1,900
Women	3,400	3,100	2,800	300	100	200
Mining	2,200	2,000	1,700	200	100	300
Men	1,900	1,700	1,500	200	(3)	200
Women	300	200	200	(3)	(3)	100
Nuclear	800	700	600	(3)	(3)	100
Men	700	600	600	(3)	(3)	100
Women	100	100	(3)	(3)	(3)	(3)
Petroleum	2,300	2,100	2,000	100	(3)	200
Men	2,000	1,900	1,800	100	(3)	100
Women	200	200	200	(3)	(3)	(3)
Other engineers	12,800	12,100	9,800	300	400	1,800
Men	10,600	10,100	8,100	100	300	1,500
Women	2,200	2,000	1,700	200	100	300

(1) Exclusive of full-time graduate students
(2) Not included in total population number
(3) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 7. Recent science and engineering master's degree recipients by field, sex, and employment status: 1984 (1982 & 1983 graduates)

Field and sex	Employment status					Full-time graduate student (2)
	Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	
Total, all fields	74,900	70,400	56,800	2,500	2,000	21,000
Men	51,600	49,300	41,900	1,700	600	15,300
Women	23,300	21,000	14,900	800	1,400	5,700
Total scientists	52,200	48,500	36,300	1,900	1,800	16,800
Men	31,600	30,100	23,700	1,100	400	11,400
Women	20,600	18,500	12,500	800	1,400	5,400
Physical scientists	3,700	3,400	3,100	100	100	2,500
Men	2,500	2,400	2,200	100	100	2,200
Women	1,100	1,000	900	100	(3)	300
Chemists	1,600	1,400	1,300	100	(3)	900
Men	900	900	800	(3)	(3)	700
Women	600	600	500	100	(3)	200
Physicists/astronomers	1,200	1,100	1,100	(3)	100	1,500
Men	1,100	1,000	1,000	(3)	100	1,400
Women	100	100	100	(3)	(3)	100
Other physical scientists	800	800	700	(3)	(3)	100
Men	500	500	400	(3)	(3)	100
Women	400	400	300	(3)	(3)	(3)
Mathematical scientists	5,100	4,800	4,600	100	200	900
Men	3,600	3,400	3,300	100	100	700
Women	1,600	1,400	1,400	100	100	300
Computer scientists	9,600	9,300	8,800	100	200	900
Men	6,800	6,700	6,300	100	(3)	600
Women	2,900	2,600	2,400	(3)	200	300
Environmental scientists	3,300	3,100	2,800	100	100	600
Men	2,400	2,300	2,100	100	(3)	400
Women	900	800	700	(3)	(3)	200
Life scientists	10,800	9,800	7,800	400	600	5,700
Men	6,400	5,900	4,700	300	100	3,700
Women	4,500	3,900	3,100	100	400	2,000
Biological scientists	6,300	5,600	4,400	300	400	4,300
Men	3,300	3,100	2,400	200	(3)	2,800
Women	3,000	2,600	2,000	100	400	1,500

Table 7 cont.

Field and sex	Employment status: Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	Full-time graduate student (2)
Agricultural scientists	4,500	4,200	3,300	200	200	1,400
Men	3,100	2,900	2,300	100	100	900
Women	1,500	1,300	1,100	100	100	500
Psychologists	5,300	4,900	2,300	100	300	2,100
Men	2,000	1,900	1,100	100	(3)	1,200
Women	3,300	3,000	1,200	100	300	900
Social scientists	14,300	13,200	6,900	800	400	4,000
Men	8,000	7,500	4,000	400	100	2,700
Women	6,300	5,700	2,900	300	300	1,300
Economists	2,800	2,700	1,900	(3)	100	900
Men	2,000	2,000	1,300	(3)	(3)	700
Women	800	700	600	(3)	(3)	200
Sociologists/anthropologists	2,100	1,800	800	100	200	1,200
Men	1,100	1,100	300	100	(3)	800
Women	1,000	800	500	(3)	200	400
Other social scientists	9,500	8,600	4,200	700	200	1,900
Men	4,900	4,400	2,300	400	(3)	1,200
Women	4,600	4,200	1,900	300	100	800
Total engineers	22,700	21,800	20,500	700	200	4,200
Men	20,100	19,300	18,100	600	200	3,800
Women	2,700	2,600	2,400	(3)	(3)	300
Aeronautical/astronautical	600	600	600	(3)	(3)	200
Men	500	500	500	(3)	(3)	100
Women	100	100	100	(3)	(3)	(3)
Chemical	1,800	1,600	1,500	100	(3)	600
Men	1,500	1,400	1,200	100	(3)	500
Women	300	300	300	(3)	(3)	100
Civil	3,100	3,000	2,800	100	(3)	500
Men	2,800	2,700	2,600	100	(3)	400
Women	300	300	300	(3)	(3)	100
Electrical/electronics	6,800	6,700	6,400	100	(3)	1,200
Men	6,400	6,200	6,000	100	(3)	1,200
Women	500	500	400	(3)	(3)	(3)

Table 7 cont.

Field and sex	Employment status					Full-time graduate student (2)
	Total population (1)	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force	
Industrial	1,100	1,000	1,000	(3)	(3)	100
Men	800	800	700	(3)	(3)	100
Women	200	200	200	(3)	(3)	(3)
Materials	600	600	600	(3)	(3)	300
Men	500	500	500	(3)	(3)	200
Women	100	100	100	(3)	(3)	(3)
Mechanical	3,700	3,500	3,300	200	(3)	800
Men	3,400	3,200	3,000	200	(3)	700
Women	300	300	300	(3)	(3)	(3)
Mining	300	300	200	(3)	(3)	100
Men	200	200	200	(3)	(3)	100
Women	(3)	(3)	(3)	(3)	(3)	(3)
Nuclear	300	300	300	(3)	(3)	100
Men	300	300	200	(3)	(3)	100
Women	(3)	(3)	(3)	(3)	(3)	(3)
Petroleum	300	300	300	(3)	(3)	(3)
Men	300	200	200	(3)	(3)	(3)
Women	(3)	(3)	(3)	(3)	(3)	(3)
Other engineers	4,200	4,100	3,700	100	(3)	400
Men	3,300	3,200	3,000	100	(3)	400
Women	900	800	700	(3)	(3)	(3)

(1) Exclusive of full-time graduate students
(2) Not included in total population number
(3) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 8. Recent science and engineering doctoral degree recipients by field, sex and employment status: 1985 (1983 & 1984 graduates)

Field and sex	Employment status				
	Total population	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force
Total, all fields	35,400	34,400	32,600	500	600
Men	25,500	25,000	23,800	300	200
Women	10,000	9,400	8,800	200	400
Total scientists	30,700	29,700	28,000	500	600
Men	21,000	20,600	19,400	300	200
Women	9,700	9,200	8,600	200	400
Physical scientists	5,000	4,900	4,900	(1)	(1)
Men	4,300	4,300	4,200	(1)	(1)
Women	700	700	700	(1)	(1)
Chemists	3,300	3,200	3,100	(1)	(1)
Men	2,700	2,700	2,600	(1)	(1)
Women	600	500	500	(1)	(1)
Physicists/astronomers	1,700	1,700	1,700	(1)	(1)
Men	1,600	1,600	1,600	(1)	(1)
Women	100	100	100	(1)	(1)
Mathematical scientists	1,200	1,100	1,100	(1)	(1)
Men	1,000	900	900	(1)	(1)
Women	200	200	200	(1)	(1)
Mathematicans	1,000	900	900	(1)	(1)
Men	800	800	800	(1)	(1)
Women	200	100	100	(1)	(1)
Statisticians	200	200	200	(1)	(1)
Men	200	200	200	(1)	(1)
Women	100	100	100	(1)	(1)
Computer specialists	1,300	1,300	1,300	(1)	(1)
Men	1,100	1,100	1,100	(1)	(1)
Women	200	200	200	(1)	(1)

Table 8 cont.

Field and sex	Employment status				
	Total population	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force
Environmental scientists	1,300	1,300	1,300	(1)	(1)
Men	1,200	1,100	1,100	(1)	(1)
Women	200	200	200	(1)	(1)
Earth scientists	900	900	900	(1)	(1)
Men	800	800	800	(1)	(1)
Women	200	100	100	(1)	(1)
Oceanographers	200	200	200	(1)	(1)
Men	200	200	200	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Atmospheric scientists	200	200	200	(1)	(1)
Men	200	200	200	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Life scientists	9,900	9,300	9,000	200	300
Men	6,400	6,100	5,900	100	200
Women	3,500	3,200	3,100	100	200
Biological scientists	6,000	5,700	5,400	200	100
Men	3,900	3,800	3,600	100	(1)
Women	2,100	1,900	1,800	100	100
Agricultural scientists	1,400	1,300	1,300	(1)	(1)
Men	1,200	1,100	1,100	(1)	(1)
Women	200	200	200	(1)	(1)
Medical scientists	2,500	2,300	2,300	(1)	200
Men	1,300	1,200	1,200	(1)	100
Women	1,200	1,100	1,100	(1)	100
Psychologists	6,000	5,800	5,500	(1)	100
Men	3,100	3,000	2,800	(1)	(1)
Women	2,900	2,800	2,700	(1)	100

Table 8 cont.

Field and sex	Employment status				
	Total population	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force
Social scientists	6,000	5,900	4,900	100	100
Men	4,100	4,000	3,400	100	(1)
Women	1,900	1,800	1,500	100	100
Economists	1,600	1,600	1,600	(1)	(1)
Men	1,300	1,300	1,200	(1)	(1)
Women	300	300	300	(1)	(1)
Sociologists/anthropologists	1,100	1,000	800	(1)	(1)
Men	500	500	400	(1)	(1)
Women	500	500	400	(1)	(1)
Other social scientists	3,400	3,300	2,600	100	(1)
Men	2,300	2,200	1,800	100	(1)
Women	1,100	1,000	800	(1)	(1)
Total engineers	4,700	4,700	4,600	(1)	(1)
Men	4,400	4,400	4,400	(1)	(1)
Women	300	300	300	(1)	(1)
Aeronautical/astronautical	300	300	300	(1)	(1)
Men	300	300	300	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Chemical	400	400	400	(1)	(1)
Men	400	400	400	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Civil	800	800	800	(1)	(1)
Men	800	800	800	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Electrical/electronics	1,100	1,100	1,100	(1)	(1)
Men	1,100	1,100	1,100	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)

Table 8 cont.

Field and sex	Employment status				
	Total population	Total employed	Employed in S/E	Unemployed, seeking	Outside the labor force
Materials science	500	500	500	(1)	(1)
Men	400	400	400	(1)	(1)
Women	100	100	100	(1)	(1)
Mechanical	400	400	400	(1)	(1)
Men	400	400	400	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Nuclear	100	100	100	(1)	(1)
Men	100	100	100	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Systems design	100	100	100	(1)	(1)
Men	100	100	100	(1)	(1)
Women	(1)	(1)	(1)	(1)	(1)
Other engineers	900	900	900	(1)	(1)
Men	800	800	800	(1)	(1)
Women	100	100	100	(1)	(1)

(1) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 9. Employed scientists and engineers by field, sex, and sector of employment: 1976 and 1986p

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal Government	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Total, all fields	2,331,200	4,615,700	1,456,500	3,166,200	287,600	620,500	219,200	354,500
Men	2,131,600	4,026,800	1,385,100	2,836,200	232,400	486,800	200,600	318,700
Women	199,700	588,900	71,400	330,000	55,200	133,700	18,500	35,800
Total scientists	959,500	2,055,100	430,300	1,106,100	248,000	524,100	110,700	160,900
Men	781,300	1,552,600	373,200	845,200	194,000	395,200	93,600	131,000
Women	178,200	502,500	57,000	261,000	54,000	128,900	17,000	29,900
Physical scientists	188,900	293,800	105,400	170,100	39,100	70,500	22,400	28,200
Men	172,700	261,200	97,200	151,300	34,400	62,600	20,900	26,000
Women	16,200	32,600	8,200	18,800	4,700	7,900	1,500	2,200
Chemists	132,800	195,200	87,200	132,100	22,700	37,000	10,700	11,400
Men	119,100	169,400	79,600	115,300	19,300	32,000	9,500	9,900
Women	13,700	25,800	7,700	16,700	3,500	5,100	1,200	1,500
Physicists/astronomers	44,300	70,800	13,100	24,800	15,000	27,700	8,900	11,500
Men	42,600	67,400	12,900	24,000	13,900	25,800	8,600	11,200
Women	1,700	3,400	200	800	1,200	2,000	200	300
Other physical scientists	11,800	27,800	5,100	13,200	1,400	5,700	2,800	5,200
Men	10,900	24,300	4,800	11,900	1,300	4,900	2,800	4,900
Women	800	3,500	300	1,300	100	900	100	300
Mathematical scientists	48,600	116,400	15,000	47,500	21,100	54,000	9,000	9,900
Men	37,100	91,400	12,000	36,400	15,700	44,100	7,200	7,500
Women	11,500	25,000	2,900	11,200	5,500	9,900	1,800	2,400
Mathematicians	43,400	97,200	13,900	39,000	20,000	48,900	7,000	7,100
Men	33,700	76,800	11,500	30,000	14,900	39,700	5,500	5,600
Women	9,700	20,400	2,400	9,000	5,100	9,200	1,500	1,500
Statisticians	5,200	19,200	1,100	8,500	1,200	5,100	2,100	2,800
Men	3,400	14,600	600	6,400	800	4,400	1,700	1,900
Women	1,800	4,600	500	2,100	400	700	400	900
Computer specialists	119,000	505,200	86,800	399,400	6,900	35,000	9,300	33,500
Men	98,400	374,100	72,300	300,300	5,800	23,900	7,700	23,800
Women	20,600	131,100	14,500	99,100	1,100	11,100	1,600	9,700

Table 9 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal Government	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	54,800	112,500	30,900	66,500	6,100	18,100	10,100	17,100
Men	50,900	100,800	28,900	60,400	5,200	15,800	9,300	15,300
Women	3,900	11,700	2,000	6,100	900	2,300	800	1,900
Earth scientists	46,500	94,300	27,000	61,600	4,600	14,600	7,800	10,300
Men	42,900	84,400	25,100	56,000	3,900	12,700	7,000	9,000
Women	3,600	10,000	1,900	5,600	600	1,900	700	1,300
Oceanographers	4,400	3,700	3,200	1,100	500	900	500	1,000
Men	4,400	3,100	3,200	700	500	800	500	900
Women	(2)	600	(2)	400	(2)	200	(2)	(2)
Atmospheric scientists	3,800	14,400	600	3,900	1,000	2,600	1,800	5,900
Men	3,600	13,300	600	3,800	800	2,300	1,800	5,300
Women	300	1,100	(2)	100	200	200	(2)	600
Life scientists	213,500	405,900	71,500	148,700	63,300	150,700	39,300	44,600
Men	179,600	310,500	63,600	117,100	50,800	112,200	34,200	37,000
Women	33,900	95,400	7,900	31,700	12,600	38,500	5,200	7,600
Biological scientists	139,400	272,000	37,600	87,600	44,700	108,200	30,700	35,100
Men	115,300	202,000	33,000	68,800	34,900	76,700	26,000	29,000
Women	24,100	70,100	4,600	18,800	9,800	31,500	4,700	6,100
Agricultural scientists	40,700	101,900	19,100	55,600	9,400	24,300	5,800	8,300
Men	39,100	83,100	18,400	44,700	9,100	20,500	5,600	7,100
Women	1,600	18,800	700	10,900	400	3,800	200	1,200
Medical scientists	33,300	32,000	14,800	5,500	9,300	18,200	2,900	1,200
Men	25,100	25,300	12,200	3,600	6,900	15,000	2,600	800
Women	8,200	6,600	2,600	1,900	2,400	3,200	300	400
Psychologists	112,500	239,700	26,400	88,200	43,800	86,100	5,200	5,700
Men	76,900	139,300	20,400	45,600	29,900	54,600	3,100	4,400
Women	35,600	100,500	6,000	42,600	13,900	31,500	2,100	1,400
Social scientists	222,300	381,700	94,400	185,600	67,700	109,700	15,300	21,800
Men	165,700	275,400	78,800	134,100	52,300	82,000	11,200	17,100
Women	56,600	106,300	15,600	51,500	15,500	27,700	4,000	4,700

Table 9 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal Government	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Economists	62,500	145,500	34,800	87,900	13,000	34,200	8,300	12,000
Men	54,600	124,200	30,400	74,100	12,000	30,400	6,600	10,100
Women	8,000	21,300	4,400	13,800	1,000	3,800	1,600	1,900
Sociologists/anthropologists	33,900	90,400	10,900	34,300	16,300	32,500	1,000	2,000
Men	22,500	53,500	7,200	17,700	11,500	21,600	500	1,300
Women	11,400	36,900	3,700	16,600	4,700	10,900	500	700
Other social scientists	125,900	145,800	48,700	63,300	38,400	43,000	6,000	7,700
Men	88,700	97,700	41,200	42,300	28,700	29,900	4,100	5,700
Women	37,200	48,100	7,500	21,100	9,700	13,000	1,900	2,100
Total engineers	1,371,700	2,560,600	1,026,200	2,060,100	39,600	96,500	108,500	193,700
Men	1,350,300	2,474,200	1,011,900	1,991,100	38,400	91,600	107,000	187,700
Women	21,400	86,400	14,300	69,000	1,200	4,800	1,500	6,000
Aeronautical/astronautical	56,800	111,600	40,300	83,500	1,800	3,600	11,100	19,100
Men	56,400	109,100	39,900	82,100	1,800	3,500	11,100	18,600
Women	400	2,600	400	1,500	(2)	100	(2)	500
Chemical	77,500	163,100	69,200	146,000	900	4,800	2,700	5,600
Men	75,000	152,800	67,100	136,700	900	4,600	2,600	5,300
Women	2,500	10,300	2,100	9,400	(2)	300	100	400
Civil	188,200	365,700	88,800	227,400	5,500	11,700	21,300	34,100
Men	182,800	354,900	86,900	220,600	5,200	11,300	20,900	33,000
Women	5,400	10,800	1,900	6,800	300	500	400	1,000
Electrical/electronics	283,000	581,300	223,500	475,900	10,800	23,500	28,300	53,600
Men	281,400	567,000	222,400	464,100	10,700	22,400	28,300	52,800
Women	1,600	14,300	1,100	11,800	100	1,100	(2)	900
Industrial	NA	150,900	NA	134,200	NA	4,700	NA	7,300
Men	NA	144,900	NA	128,600	NA	4,600	NA	6,900
Women	NA	6,100	NA	5,500	NA	(2)	NA	400

Table 9 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal Government	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Materials	NA	59,300	NA	50,000	NA	4,600	NA	2,800
Men	NA	56,800	NA	48,100	NA	4,500	NA	2,600
Women	NA	2,500	NA	1,900	NA	100	NA	100
Mechanical	276,200	513,700	230,400	446,400	8,700	19,400	15,400	29,300
Men	273,900	501,000	228,400	437,100	8,600	17,400	15,100	28,400
Women	2,300	12,700	1,900	9,400	100	2,000	300	900
Mining	NA	19,000	NA	16,100	NA	900	NA	1,200
Men	NA	18,300	NA	15,600	NA	900	NA	1,100
Women	NA	700	NA	500	NA	100	NA	100
Nuclear	NA	25,300	NA	16,500	NA	600	NA	5,400
Men	NA	24,400	NA	15,700	NA	600	NA	5,300
Women	NA	900	NA	800	NA	(2)	NA	100
Petroleum	NA	38,400	NA	35,800	NA	800	NA	800
Men	NA	36,100	NA	33,500	NA	800	NA	800
Women	NA	2,400	NA	2,300	NA	(2)	NA	(2)
Other engineers	490,000	532,100	374,000	428,300	11,900	21,700	29,600	34,500
Men	480,900	509,000	367,100	409,000	11,200	21,100	29,000	32,900
Women	9,100	23,100	6,900	19,300	600	600	700	1,600

Table 9 cont.

Field and sex	Sector of employment					
	State/local government		Nonprofit organizations		Other (1)	
	1976	1986p	1976	1986p	1976	1986p
Total, all fields	134,500	225,800	87,000	165,700	146,400	82,900
Men	117,300	193,000	63,500	116,500	132,600	75,600
Women	17,300	32,800	23,500	49,200	13,700	7,300
Total scientists	59,900	106,400	63,200	124,400	47,500	33,200
Men	45,100	77,500	40,300	76,300	35,100	27,500
Women	14,800	29,000	22,900	48,100	12,400	5,700
Physical scientists	5,700	9,800	8,900	11,600	7,400	3,700
Men	5,200	8,200	7,800	10,200	7,100	2,900
Women	500	1,600	1,100	1,400	300	800
Chemists	4,200	8,200	2,700	5,100	5,300	1,400
Men	3,800	7,000	2,000	4,200	5,000	1,000
Women	400	1,200	700	900	200	400
Physicists/astronomers	800	300	4,700	4,800	1,900	1,700
Men	800	200	4,600	4,600	1,900	1,700
Women	(2)	(2)	100	300	(2)	(2)
Other physical scientists	800	1,300	1,500	1,700	200	700
Men	700	1,000	1,200	1,500	200	200
Women	100	400	300	200	(2)	500
Mathematical scientists	1,300	1,700	900	2,400	1,200	900
Men	700	1,100	600	1,500	900	800
Women	600	500	300	900	300	100
Mathematicians	700	600	700	900	1,100	700
Men	400	300	600	600	800	700
Women	300	300	200	300	300	(2)
Statisticians	600	1,100	200	1,500	100	100
Men	300	800	100	900	100	100
Women	400	300	200	600	(2)	100
Computer specialists	5,000	15,900	5,600	14,300	5,400	7,000
Men	4,100	10,600	4,600	9,600	3,900	5,900
Women	900	5,400	1,000	4,700	1,500	1,100

Table 9 cont.

Field and sex	Sector of employment					
	State/local government		Nonprofit organizations		Other (1)	
	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	2,200	6,500	2,000	1,600	3,700	2,700
Men	2,100	5,700	1,700	1,300	3,700	2,300
Women	100	800	200	300	(2)	300
Earth scientists	1,900	6,100	1,800	600	3,400	1,300
Men	1,900	5,300	1,600	400	3,400	1,100
Women	(2)	800	200	200	(2)	200
Oceanographers	100	(2)	(2)	500	100	200
Men	100	(2)	(2)	500	100	200
Women	(2)	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	200	400	100	500	100	1,200
Men	200	400	100	500	100	1,100
Women	(2)	(2)	(2)	(2)	(2)	100
Life scientists	20,100	27,700	12,200	28,100	7,000	6,100
Men	17,500	22,200	7,700	16,800	5,800	5,300
Women	2,600	5,500	4,500	11,400	1,200	800
Biological scientists	15,100	18,900	6,500	18,600	4,900	3,500
Men	12,900	14,800	4,400	9,700	4,200	2,900
Women	2,200	4,200	2,100	8,800	700	600
Agricultural scientists	4,600	7,900	400	4,100	1,500	1,700
Men	4,500	6,800	400	2,500	1,300	1,600
Women	100	1,100	(2)	1,700	200	100
Medical scientists	500	800	5,300	5,400	600	800
Men	200	600	2,900	4,600	400	700
Women	300	200	2,400	800	200	100
Psychologists	7,600	13,000	19,400	43,100	10,100	3,600
Men	5,100	6,600	11,600	25,300	6,800	2,700
Women	2,500	6,300	7,800	17,800	3,300	900
Social scientists	18,000	31,900	14,200	23,300	12,700	9,300
Men	10,300	23,100	6,200	11,500	6,900	7,600
Women	7,600	8,800	8,000	11,800	5,900	1,700

Table 9 cont.

Field and sex	Sector of employment					
	State/local government		Nonprofit organizations		Other (1)	
	1976	1986p	1976	1986p	1976	1986p
Economists	2,600	2,300	900	3,800	2,900	5,100
Men	2,200	2,100	600	3,000	2,700	4,400
Women	500	300	200	800	200	700
Sociologists/anthropologists	3,600	9,800	1,700	8,700	500	2,900
Men	2,200	6,300	900	3,700	200	2,900
Women	1,400	3,600	800	5,000	300	100
Other social scientists	11,800	19,800	11,700	10,800	9,400	1,200
Men	6,000	14,800	4,700	4,800	4,000	300
Women	5,800	5,000	6,900	6,000	5,400	900
Total engineers	74,600	119,300	23,900	41,300	98,900	49,700
Men	72,200	115,500	23,200	40,200	97,600	48,100
Women	2,500	3,800	600	1,100	1,300	1,600
Aeronautical/astronautical	700	200	700	2,500	2,200	2,800
Men	700	200	700	2,500	2,200	2,300
Women	(2)	(2)	(2)	(2)	(2)	400
Chemical	1,100	1,200	1,200	2,500	2,500	2,900
Men	900	1,100	1,200	2,400	2,400	2,800
Women	200	100	(2)	100	100	200
Civil	50,700	80,600	2,000	1,800	19,900	10,100
Men	48,600	78,500	2,000	1,700	19,100	9,900
Women	2,000	2,100	(2)	100	800	200
Electrical/electronics	4,300	6,500	4,000	9,500	11,900	12,200
Men	4,300	6,400	4,000	9,300	11,600	12,000
Women	(2)	(2)	(2)	200	300	200
Industrial	NA	1,000	NA	1,800	NA	2,000
Men	NA	1,000	NA	1,700	NA	1,900
Women	NA	(2)	NA	100	NA	100

Table 9 cont.

Field and sex	Sector of employment					
	State/local government		Nonprofit organizations		Other (1)	
	1976	1986p	1976	1986p	1976	1986p
Materials	NA	700	NA	1,100	NA	200
Men	NA	300	NA	1,000	NA	100
Women	NA	300	NA	100	NA	(2)
Mechanical	3,100	4,200	6,900	6,600	11,600	7,800
Men	3,100	4,100	6,900	6,300	11,600	7,700
Women	(2)	200	(2)	200	(2)	100
Mining	NA	600	NA	(2)	NA	100
Men	NA	600	NA	(2)	NA	100
Women	NA	(2)	NA	(2)	NA	(2)
Nuclear	NA	600	NA	700	NA	1,600
Men	NA	600	NA	700	NA	1,500
Women	NA	(2)	NA	(2)	NA	(2)
Petroleum	NA	600	NA	300	NA	100
Men	NA	500	NA	300	NA	100
Women	NA	(2)	NA	(2)	NA	(2)
Other engineers	14,700	23,300	9,000	14,500	50,800	9,900
Men	14,500	22,200	8,400	14,200	50,700	9,600
Women	200	1,100	600	300	100	300

p = estimates for 1986 are preliminary data

(1) Includes other government, military, other, and no report
(2) Too few cases to estimate
NA = Not available

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 10. Employed doctoral scientists and engineers by field, sex, and sector of employment: 1975 and 1985

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal government	
	1975	1985	1975	1985	1975	1985	1975	1985
Total, all fields	255,900	400,400	64,600	125,800	149,100	211,600	19,000	26,300
Men	233,900	341,900	62,500	112,800	133,600	177,300	18,000	23,600
Women	22,100	58,500	2,100	12,900	15,500	34,300	1,000	2,700
Total scientists	213,500	334,500	42,500	87,900	134,200	189,900	16,000	22,500
Men	191,700	277,500	40,500	75,800	118,800	156,000	15,000	19,900
Women	21,800	57,000	2,000	12,100	15,400	33,900	1,000	2,600
Physical scientists	54,600	67,500	22,100	30,300	25,700	29,700	3,700	4,000
Men	52,100	62,800	21,700	28,600	24,000	27,400	3,600	3,700
Women	2,500	4,700	500	1,700	1,700	2,300	200	300
Chemists	35,800	43,700	18,100	24,100	14,200	16,100	1,700	1,800
Men	33,800	39,900	17,700	22,600	12,900	14,200	1,600	1,500
Women	2,100	3,800	400	1,500	1,300	1,900	100	200
Physicists/astronomers	18,800	23,700	4,000	6,200	11,400	13,600	2,100	2,300
Men	18,300	22,900	4,000	6,000	11,100	13,100	2,000	2,200
Women	500	900	100	200	400	500	(2)	100
Mathematical scientists	13,600	16,800	1,000	1,900	11,700	13,600	600	900
Men	12,700	15,200	1,000	1,700	10,900	12,300	500	800
Women	900	1,600	(2)	200	800	1,200	(2)	100
Mathematicans	11,900	13,900	800	1,400	10,400	11,600	400	600
Men	11,000	12,700	800	1,300	9,600	10,600	400	500
Women	800	1,200	(2)	100	800	1,000	(2)	(2)
Statisticians	1,700	2,800	200	500	1,300	1,900	200	300
Men	1,700	2,500	200	400	1,300	1,700	200	300
Women	100	300	(2)	100	100	200	(2)	(2)
Computer specialists	3,500	15,000	1,400	8,400	1,700	5,300	200	700
Men	3,400	13,300	1,400	7,400	1,600	4,800	200	700
Women	100	1,600	100	1,000	100	500	(2)	(2)

Table 10 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal government	
	1975	1985	1975	1985	1975	1985	1975	1985
Environmental scientists	12,100	17,300	2,900	5,300	6,000	7,200	2,200	3,300
Men	11,800	16,200	2,900	4,900	5,800	6,700	2,200	3,100
Women	300	1,100	100	300	200	500	(2)	200
Earth scientists	9,500	13,200	2,700	4,800	4,600	5,100	1,500	2,400
Men	9,300	12,400	2,600	4,500	4,500	4,800	1,500	2,300
Women	200	800	(2)	300	100	300	(2)	100
Oceanographers	1,300	2,000	100	200	800	1,200	200	400
Men	1,200	1,700	100	100	800	1,100	200	400
Women	100	200	(2)	(2)	(2)	100	(2)	100
Atmospheric scientists	1,300	2,100	200	300	600	1,000	400	500
Men	1,300	2,000	200	300	500	900	400	500
Women	(2)	100	(2)	(2)	(2)	100	(2)	(2)
Life scientists	63,300	101,800	8,700	19,200	42,500	63,600	5,900	8,000
Men	55,800	82,100	8,200	16,600	36,900	50,100	5,500	6,900
Women	7,500	19,700	500	2,600	5,600	13,400	500	1,100
Biological scientists	39,000	59,900	3,500	9,300	28,900	40,700	3,400	4,800
Men	33,300	47,200	3,200	7,900	24,300	31,500	3,100	4,000
Women	5,800	12,600	300	1,400	4,500	9,200	400	800
Agricultural scientists	11,000	15,500	2,300	4,000	6,500	8,600	1,700	2,100
Men	10,800	14,700	2,300	3,700	6,400	8,200	1,700	2,000
Women	100	800	(2)	300	100	400	(2)	100
Medical scientists	13,300	26,500	2,800	5,800	7,100	14,300	800	1,100
Men	11,700	20,200	2,700	5,000	6,100	10,500	700	900
Women	1,600	6,200	100	800	1,000	3,800	100	300
Psychologists	30,000	52,200	4,100	15,500	17,600	24,900	1,000	1,000
Men	23,700	35,600	3,300	10,400	14,000	17,400	800	800
Women	6,300	16,600	800	5,100	3,700	7,500	100	200

Table 10 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal government	
	1975	1985	1975	1985	1975	1985	1975	1985
Social scientists	36,300	64,000	2,200	7,400	28,900	45,700	2,400	4,600
Men	32,200	52,200	2,100	6,200	25,500	37,300	2,200	4,000
Women	4,100	11,800	100	1,200	3,400	8,300	200	700
Economists	11,800	17,900	1,400	3,000	8,200	11,800	1,300	1,700
Men	11,200	16,200	1,400	2,700	7,700	10,900	1,200	1,500
Women	600	1,700	100	300	500	1,000	100	200
Sociologists/anthropologists	7,900	12,700	100	1,100	7,300	10,600	200	200
Men	6,300	9,100	100	800	5,800	7,600	100	100
Women	1,700	3,600	(2)	300	1,500	3,000	(2)	100
Other social scientists	16,600	33,400	700	3,300	13,400	23,200	900	2,700
Men	14,800	27,000	600	2,700	11,900	18,800	900	2,300
Women	1,800	6,400	100	600	1,400	4,400	100	400
Total engineers	42,400	65,900	22,100	37,900	14,900	21,700	3,000	3,800
Men	42,200	64,400	22,000	37,000	14,800	21,200	3,000	3,700
Women	200	1,500	100	800	100	500	(2)	100
Aeronautical/astronautical	2,000	3,800	800	2,100	500	700	400	600
Men	2,000	3,700	800	2,000	500	700	400	600
Women	(2)	100	(2)	100	(2)	(2)	(2)	(2)
Chemical	5,400	7,100	3,900	5,100	1,200	1,800	100	200
Men	5,300	7,000	3,900	5,000	1,200	1,700	100	200
Women	(2)	100	(2)	100	(2)	(2)	(2)	(2)
Civil	3,800	6,400	1,100	2,400	2,000	3,400	200	300
Men	3,800	6,300	1,100	2,400	2,000	3,400	200	300
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)

Table 10 cont.

Field and sex	Sector of employment							
	Total		Industry		Educational institutions		Federal government	
	1975	1985	1975	1985	1975	1985	1975	1985
Electrical/electronics	8,500	14,300	4,600	8,600	3,200	4,700	500	800
Men	8,500	13,900	4,600	8,300	3,100	4,600	500	700
Women	(2)	300	(2)	200	(2)	100	(2)	(2)
Materials science	4,800	7,300	3,000	4,800	1,300	1,800	300	400
Men	4,700	7,000	3,000	4,600	1,200	1,800	300	400
Women	(2)	200	(2)	200	(2)	(2)	(2)	(2)
Mechanical	4,000	6,600	1,800	3,100	1,800	3,000	200	300
Men	4,000	6,500	1,800	3,100	1,800	2,900	200	300
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)
Nuclear	1,700	2,400	900	1,500	500	500	100	100
Men	1,700	2,300	900	1,500	500	500	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	2,400	3,700	1,200	2,500	700	800	300	100
Men	2,400	3,500	1,100	2,400	600	700	300	100
Women	(2)	200	(2)	100	(2)	(2)	(2)	(2)
Other engineers	9,800	14,300	4,700	7,800	3,800	5,000	900	1,000
Men	9,800	14,000	4,700	7,700	3,800	4,900	900	1,000
Women	100	400	(2)	200	(2)	100	(2)	(2)

Table 10 cont.

Field and sex	Sector of employment					
	State government		Nonprofit organizations		Other (1)	
	1975	1985	1975	1985	1975	1985
Total, all fields	3,000	5,900	8,300	13,600	11,900	17,100
Men	2,600	4,800	7,400	10,400	9,800	12,900
Women	400	1,100	900	3,200	2,100	4,200
Total scientists	2,800	5,700	7,100	11,900	11,000	16,500
Men	2,400	4,700	6,200	8,800	8,900	12,300
Women	400	1,100	900	3,100	2,100	4,200
Physical scientists	200	200	1,900	2,300	900	1,000
Men	200	200	1,800	2,100	800	900
Women	(2)	(2)	100	200	100	100
Chemists	200	100	1,100	1,000	600	600
Men	200	100	1,000	900	500	600
Women	(2)	(2)	100	100	100	100
Physicists/astronomers	(2)	(2)	900	1,200	400	300
Men	(2)	(2)	900	1,200	400	300
Women	(2)	(2)	(2)	100	(2)	(2)
Mathematical scientists	(2)	(2)	200	300	100	100
Men	(2)	(2)	200	200	100	100
Women	(2)	(2)	(2)	100	(2)	(2)
Mathematicans	(2)	(2)	200	200	100	100
Men	(2)	(2)	200	200	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Statisticians	(2)	(2)	(2)	100	(2)	(2)
Men	(2)	(2)	(2)	(2)	(2)	(2)
Women	(2)	(2)	(2)	(2)	(2)	(2)
Computer specialists	(2)	200	100	300	100	100
Men	(2)	100	100	300	100	100
Women	(2)	(2)	(2)	100	(2)	(2)

Table 10 cont.

Field and sex	Sector of employment					
	State government		Nonprofit organizations		Other (1)	
	1975	1985	1975	1985	1975	1985
Environmental scientists	300	600	500	700	200	300
Men	300	500	500	600	200	200
Women	(2)	(2)	(2)	(2)	(2)	(2)
Earth scientists	300	500	300	300	100	100
Men	300	500	300	300	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Oceanographers	(2)	(2)	100	100	(2)	(2)
Men	(2)	(2)	100	100	(2)	(2)
Women	(2)	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	(2)	(2)	100	200	(2)	100
Men	(2)	(2)	100	200	(2)	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Life scientists	1,000	1,800	1,800	3,900	3,400	5,400
Men	900	1,400	1,500	2,900	2,800	4,200
Women	100	400	300	1,000	500	1,200
Biological scientists	500	800	1,400	2,800	1,400	1,500
Men	400	600	1,100	2,000	1,200	1,200
Women	100	100	300	700	200	300
Agricultural scientists	200	400	100	300	100	100
Men	200	400	100	300	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Medical scientists	300	600	400	800	1,800	3,800
Men	300	400	300	600	1,600	2,900
Women	100	200	(2)	200	300	900
Psychologists	700	1,200	1,100	2,100	5,500	7,500
Men	600	900	900	1,100	4,100	5,000
Women	100	300	200	1,000	1,400	2,400

Table 10 cont.

Field and sex	Sector of employment					
	State government		Nonprofit organizations		Other (1)	
	1975	1985	1975	1985	1975	1985
Social scientists	500	1,800	1,500	2,300	900	2,100
Men	400	1,500	1,200	1,600	800	1,700
Women	100	300	200	800	100	400
Economists	100	200	400	400	400	800
Men	100	100	400	300	400	700
Women	(2)	(2)	(2)	100	(2)	100
Sociologists/anthropologists	(2)	100	300	600	(2)	100
Men	(2)	100	200	400	(2)	100
Women	(2)	(2)	100	200	(2)	100
Other social scientists	300	1,600	800	1,400	500	1,200
Men	300	1,300	700	900	400	1,000
Women	100	300	100	500	100	200
Total engineers	200	100	1,200	1,700	900	600
Men	200	100	1,200	1,700	900	600
Women	(2)	(2)	(2)	(2)	(2)	(2)
Aeronautical/astronautical	(2)	(2)	100	300	100	100
Men	(2)	(2)	100	300	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Chemical	(2)	(2)	100	100	(2)	(2)
Men	(2)	(2)	100	100	(2)	(2)
Women	(2)	(2)	(2)	(2)	(2)	(2)
Civil	100	100	(2)	(2)	300	200
Men	100	(2)	(2)	(2)	300	200
Women	(2)	(2)	(2)	(2)	(2)	(2)

Table 10 cont.

Field and sex	Sector of employment					
	State government		Nonprofit organizations		Other (1)	
	1975	1985	1975	1985	1975	1985
Electrical/electronics	(2)	(2)	100	200	100	100
Men	(2)	(2)	100	200	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Materials science	(2)	(2)	200	200	(2)	(2)
Men	(2)	(2)	200	200	(2)	(2)
Women	(2)	(2)	(2)	(2)	(2)	(2)
Mechanical	(2)	(2)	200	200	(2)	(2)
Men	(2)	(2)	200	200	(2)	(2)
Women	(2)	(2)	(2)	(2)	(2)	(2)
Nuclear	(2)	(2)	100	200	(2)	100
Men	(2)	(2)	100	200	(2)	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	(2)	(2)	200	200	100	100
Men	(2)	(2)	200	200	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Other engineers	(2)	100	200	300	100	100
Men	(2)	100	200	300	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)

(1) Includes other government, military, hospital/clinics, other, and no report
(2) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 11. Recent science and engineering degree recipients by field, degree level, and sector of employment: 1984
(1982 and 1983 graduates)

Field and degree level	Sector of employment						
	Total (1)	Industry	Educational institutions	Federal government	State/local government	Nonprofit organizations	Other (2)
	Bachelor's						
Total, all fields	383,100	257,100	31,700	21,800	25,000	17,500	30,000
Total scientists	266,300	165,800	28,100	11,300	20,800	16,400	23,900
Physical scientists	14,300	8,900	1,600	800	1,000	400	1,700
Chemists	8,700	5,800	900	200	700	200	1,000
Physicists/astronomers	3,900	2,300	400	500	(3)	100	600
Other physical scientists	1,700	800	400	100	200	100	200
Mathematical scientists	15,300	10,800	2,200	900	200	400	800
Computer scientists	38,000	31,000	1,800	1,600	1,300	400	1,900
Environmental scientists	9,500	6,800	800	600	500	200	600
Life scientists	49,300	25,900	7,900	2,200	3,300	2,400	7,500
Biological scientists	30,200	13,500	6,200	700	1,600	1,800	6,500
Agricultural scientists	19,100	12,400	1,700	1,600	1,800	700	1,000
Psychologists	42,000	20,600	5,900	800	3,500	6,200	5,000
Social scientists	97,700	61,800	7,800	4,400	11,100	6,400	6,300
Economists	29,800	23,800	1,100	1,300	1,900	500	1,200
Sociologists/anthropologists	27,200	13,700	2,900	1,000	4,200	3,100	2,300
Other social scientists	40,800	24,400	3,800	2,000	5,000	2,800	2,800
Total engineers	116,900	91,300	3,700	10,500	4,200	1,100	6,100
Aeronautical/astronautical	3,500	2,100	100	400	(3)	(3)	800
Chemical	9,100	7,700	400	500	100	(3)	300
Civil	17,500	11,500	600	1,900	2,500	100	900
Electrical/electronics	33,300	27,100	1,000	2,900	300	300	1,600
Industrial	6,700	5,600	100	500	100	(3)	300
Materials	2,400	2,100	100	100	(3)	(3)	100
Mechanical	27,600	21,900	700	2,900	400	200	1,300
Mining	2,000	1,500	100	100	100	(3)	100
Nuclear	700	500	(3)	100	(3)	(3)	100
Petroleum	2,100	2,000	(3)	(3)	(3)	(3)	(3)
Other engineers	12,100	9,100	600	1,000	500	300	600

Table 11 cont.

Field and degree level	Sector of employment						
	Total (1)	Industry	Educational institutions	Federal government	State/local government	Nonprofit organizations	Other (2)
	Master's						
Total, all fields	70,400	40,400	10,300	4,800	5,500	4,200	5,100
Total scientists	48,500	23,900	9,300	3,100	4,700	3,800	3,700
Physical scientists	3,400	2,100	800	200	100	100	100
Chemists	1,400	1,100	200	100	(3)	(3)	(3)
Physicists/astronomers	1,100	700	300	(3)	(3)	100	(3)
Other physical scientists	800	400	300	100	100	(3)	(3)
Mathematical scientists	4,800	2,700	1,400	500	100	100	200
Computer scientists	9,300	7,200	1,300	300	100	200	300
Environmental scientists	3,100	2,200	300	400	100	100	100
Life scientists	9,800	3,500	2,900	900	1,200	300	1,100
Biological scientists	5,600	1,500	1,900	500	600	100	900
Agricultural scientists	4,200	2,000	1,000	300	500	100	200
Psychologists	4,900	1,500	700	100	600	900	1,000
Social scientists	13,200	4,800	1,900	800	2,400	2,300	900
Economists	2,700	1,500	600	300	200	200	(3)
Sociologists/anthropologists	1,800	900	500	(3)	200	200	(3)
Other social scientists	8,600	2,400	900	500	2,100	1,900	800
Total engineers	21,800	16,500	1,000	1,700	900	400	1,400
Aeronautical/astronautical	600	300	100	100	(3)	(3)	100
Chemical	1,600	1,400	(3)	100	(3)	(3)	100
Civil	3,000	2,100	100	200	300	(3)	300
Electrical/electronics	6,700	5,800	200	300	(3)	200	200
Industrial	1,000	700	100	100	(3)	(3)	100
Materials	600	400	100	100	(3)	(3)	(3)
Mechanical	3,500	2,700	100	300	(3)	(3)	300
Mining	300	200	(3)	(3)	(3)	(3)	(3)
Nuclear	300	200	(3)	(3)	(3)	(3)	(3)
Petroleum	300	200	(3)	(3)	(3)	(3)	(3)
Other engineers	4,100	2,400	200	500	500	100	300

(1) Exclusive of full-time graduate students
(2) Includes other government, military, other, and no report
(3) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 11a. Recent doctoral science and engineering degree recipients by field and sector of employment: 1985 (1983 & 1984 graduates)

Field	Sector of employment						
	Total	Industry	Educational institutions	Federal government	State government	Nonprofit organizations	Other (1)
Total, all fields	34,400	8,800	19,200	1,600	600	2,100	2,200
Total scientists	29,700	6,500	17,200	1,300	600	2,000	2,100
Physical scientists	4,900	2,200	2,300	200	(2)	200	100
Chemists	3,200	1,700	1,300	100	(2)	(2)	(2)
Physicists/astronomers	1,700	500	900	100	(2)	100	(2)
Mathematical scientists	1,100	100	1,000	(2)	(2)	(2)	(2)
Mathematicans	900	100	800	(2)	(2)	(2)	(2)
Statisticians	200	100	100	(2)	(2)	(2)	(2)
Computer specialists	1,300	700	600	(2)	(2)	(2)	(2)
Environmental scientists	1,300	300	600	200	(2)	100	(2)
Earth scientists	900	300	400	100	(2)	(2)	(2)
Oceanographers	200	(2)	100	(2)	(2)	(2)	(2)
Atmospheric scientists	200	(2)	100	(2)	(2)	100	(2)
Life scientists	9,300	1,300	6,300	400	100	700	500
Biological scientists	5,700	600	4,100	200	(2)	600	100
Agricultural scientists	1,300	300	900	100	100	(2)	(2)
Medical scientists	2,300	400	1,300	100	100	100	400
Psychologists	5,800	1,200	2,500	100	100	600	1,200
Social scientists	5,900	600	4,100	400	200	400	300
Economists	1,600	100	1,100	200	100	100	(2)
Sociologists/anthropologists	1,000	100	700	(2)	(2)	100	100
Other social scientists	3,300	300	2,200	200	200	100	200

Table 11a cont.

Field	Sector of employment						
	Total	Industry	Educational institutions	Federal government	State government	Nonprofit organizations	Other (1)
Total engineers	4,700	2,300	2,000	300	(2)	100	(2)
Aeronautical/astronautical	300	100	(2)	200	(2)	(2)	(2)
Chemical	400	100	300	(2)	(2)	(2)	(2)
Civil	800	300	400	(2)	(2)	(2)	(2)
Electrical/electronics	1,100	600	500	(2)	(2)	(2)	(2)
Materials science	500	400	100	(2)	(2)	(2)	(2)
Mechanical	400	100	300	(2)	(2)	(2)	(2)
Nuclear	100	100	(2)	(2)	(2)	(2)	(2)
Systems design	100	100	(2)	(2)	(2)	(2)	(2)
Other engineers	900	500	400	(2)	(2)	(2)	(2)

(1) Includes other government, military, other, and no report
(2) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 12. Employed scientists and engineers by field, selected sector of employment, and primary work activity: 1986p

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Total, all fields	4,615,700	1,310,900	142,700	264,500	903,700	1,322,500	409,900	912,600
Industry	3,166,200	933,200	16,900	125,100	791,300	973,200	304,800	668,400
Educational institutions	620,500	168,800	93,100	59,600	16,100	73,100	19,800	53,300
Federal Government	354,500	115,000	16,400	45,300	53,300	122,000	50,600	71,400
State/local government	225,800	39,500	3,700	13,400	22,400	80,000	9,200	70,800
Nonprofit organizations	165,700	37,400	9,600	16,700	11,000	54,500	20,400	34,100
Other (1)	82,900	16,900	3,000	4,400	9,600	19,800	5,200	14,600
Total scientists	2,055,100	463,000	129,600	170,300	163,200	530,800	157,800	373,000
Industry	1,106,100	216,800	11,700	70,400	134,700	343,000	100,200	242,800
Educational institutions	524,100	140,000	88,900	45,700	5,300	59,900	17,100	42,800
Federal Government	160,900	54,900	13,800	28,900	12,200	47,900	20,300	27,600
State/local government	106,400	20,100	3,200	11,200	5,700	32,400	5,700	26,700
Nonprofit organizations	124,400	25,000	9,400	11,900	3,700	39,300	12,400	26,900
Other (1)	33,200	6,200	2,500	2,100	1,600	8,200	2,100	6,100
Physical scientists	293,800	116,000	28,200	45,600	42,300	77,300	43,500	33,900
Industry	170,100	73,700	5,200	29,700	38,800	55,200	31,000	24,200
Educational institutions	70,500	20,100	16,100	3,500	400	6,300	2,100	4,200
Federal Government	28,200	13,700	3,500	8,500	1,800	9,200	6,500	2,800
State/local government	9,800	2,700	500	1,500	600	1,700	300	1,400
Nonprofit organizations	11,600	4,500	1,900	2,000	600	4,700	3,600	1,100
Other (1)	3,700	1,300	1,000	300	(3)	300	(3)	200
Chemists	195,200	75,100	11,900	30,300	32,900	50,800	26,100	24,700
Industry	132,100	56,300	3,000	22,700	30,700	41,200	21,800	19,400
Educational institutions	37,000	8,500	6,600	1,700	200	3,300	1,000	2,200
Federal Government	11,400	5,500	1,000	3,500	1,000	3,000	2,100	900
State/local government	8,200	2,200	500	1,100	600	1,300	(3)	1,300
Nonprofit organizations	5,100	2,300	600	1,300	300	1,900	1,100	700
Other (1)	1,400	300	200	(3)	(3)	100	(3)	100

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Physicists/astronomers	70,800	30,200	13,600	10,100	6,500	19,500	13,900	5,600
Industry	24,800	11,200	1,400	4,000	5,800	10,500	7,500	3,000
Educational institutions	27,700	10,000	8,500	1,300	200	2,600	1,000	1,600
Federal Government	11,500	6,100	1,800	3,800	500	4,200	3,300	800
State/local government	300	200	(3)	200	(3)	(3)	(3)	(3)
Nonprofit organizations	4,800	1,800	1,100	700	100	2,000	2,000	(3)
Other (1)	1,700	1,000	800	200	(3)	100	(3)	100
Other physical scientists	27,800	10,700	2,600	5,200	2,900	7,100	3,500	3,600
Industry	13,200	6,200	800	3,000	2,400	3,400	1,700	1,800
Educational institutions	5,700	1,600	1,000	600	(3)	400	100	300
Federal Government	5,200	2,100	600	1,200	300	2,100	1,000	1,000
State/local government	1,300	300	(3)	300	(3)	400	200	100
Nonprofit organizations	1,700	500	200	(3)	200	800	400	400
Other (1)	700	100	(3)	(3)	(3)	100	(3)	100
Mathematical scientists	116,400	17,100	5,200	6,400	5,500	33,600	16,500	17,000
Industry	47,500	6,900	100	2,700	4,100	26,600	13,100	13,500
Educational institutions	54,000	5,500	4,500	900	(3)	2,500	500	2,100
Federal Government	9,900	3,300	300	2,000	1,000	2,900	2,200	700
State/local government	1,700	200	(3)	200	(3)	500	300	300
Nonprofit organizations	2,400	1,100	200	700	200	500	300	200
Other (1)	900	200	(3)	(3)	200	500	100	400
Mathematicians	97,200	13,600	4,900	4,200	4,500	30,200	14,600	15,600
Industry	39,000	5,800	100	2,300	3,400	24,100	11,700	12,400
Educational institutions	48,900	4,600	4,400	200	(3)	2,500	500	2,000
Federal Government	7,100	2,600	300	1,400	900	2,500	2,000	500
State/local government	600	(3)	(3)	(3)	(3)	300	100	200
Nonprofit organizations	900	500	(3)	300	100	300	200	100
Other (1)	700	100	(3)	(3)	100	500	100	300

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Statisticians	19,200	3,500	300	2,300	900	3,400	1,900	1,500
Industry	8,500	1,100	(3)	400	600	2,500	1,400	1,100
Educational institutions	5,100	900	100	700	(3)	(3)	(3)	(3)
Federal Government	2,800	700	(3)	600	100	400	300	200
State/local government	1,100	200	(3)	200	(3)	200	100	(3)
Nonprofit organizations	1,500	600	200	300	100	200	100	100
Other (1)	100	100	(3)	(3)	100	(3)	(3)	(3)
Computer specialists	505,200	94,500	3,300	9,600	81,600	90,800	31,700	59,200
Industry	399,400	78,900	900	5,900	72,000	72,800	26,600	46,200
Educational institutions	35,000	5,400	1,800	1,900	1,700	4,900	1,100	3,700
Federal Government	33,500	5,300	400	1,100	3,900	5,900	1,800	4,200
State/local government	15,900	2,700	(3)	200	2,500	2,700	100	2,600
Nonprofit organizations	14,300	1,200	300	300	600	3,600	1,700	1,900
Other (1)	7,000	1,000	(3)	100	900	1,000	400	600
Environmental scientists	112,500	40,200	12,600	19,500	8,100	19,900	6,200	13,700
Industry	66,500	19,400	1,300	11,400	6,700	13,300	3,300	10,000
Educational institutions	18,100	8,400	6,700	1,600	100	1,400	800	700
Federal Government	17,100	7,900	2,600	4,300	1,000	3,300	1,600	1,700
State/local government	6,500	2,900	900	1,700	300	1,300	300	900
Nonprofit organizations	1,600	1,200	900	200	(3)	100	100	100
Other (1)	2,700	400	100	200	100	500	200	300
Earth scientists	94,300	31,800	8,700	16,500	6,700	16,900	4,900	12,000
Industry	61,600	17,900	1,200	10,600	6,100	12,300	2,700	9,500
Educational institutions	14,600	5,800	4,900	900	100	1,400	800	600
Federal Government	10,300	4,900	1,400	3,200	400	1,900	1,000	900
State/local government	6,100	2,800	900	1,600	200	1,100	300	800
Nonprofit organizations	600	200	100	100	(3)	100	100	100
Other (1)	1,300	200	100	100	(3)	100	(3)	100

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Oceanographers	3,700	2,700	1,200	900	700	600	400	200
Industry	1,100	900	(3)	400	400	100	100	(3)
Educational institutions	900	700	600	100	(3)	(3)	(3)	(3)
Federal Government	1,000	700	100	300	200	200	100	100
State/local government	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Nonprofit organizations	500	500	500	(3)	(3)	(3)	(3)	(3)
Other (1)	200	(3)	(3)	(3)	(3)	200	200	100
Atmospheric scientists	14,400	5,700	2,800	2,200	800	2,400	1,000	1,400
Industry	3,900	600	100	300	200	900	400	500
Educational institutions	2,600	1,900	1,300	600	(3)	(3)	(3)	(3)
Federal Government	5,900	2,300	1,100	800	400	1,100	500	700
State/local government	400	100	(3)	100	100	100	100	100
Nonprofit organizations	500	500	300	200	(3)	(3)	(3)	(3)
Other (1)	1,200	200	100	100	100	200	(3)	200
Life scientists	405,900	130,900	59,700	55,700	15,500	105,800	29,200	76,600
Industry	148,700	24,500	2,900	13,300	8,400	55,100	13,900	41,200
Educational institutions	150,700	68,600	42,900	23,800	1,900	15,700	5,600	10,100
Federal Government	44,600	17,500	5,900	8,900	2,600	17,000	4,800	12,200
State/local government	27,700	7,700	1,600	5,100	1,000	9,700	2,000	7,700
Nonprofit organizations	28,100	10,600	5,300	3,800	1,500	6,900	2,000	4,900
Other (1)	6,100	2,100	1,200	900	100	1,500	900	600
Biological scientists	272,000	92,900	48,200	35,100	9,500	68,200	18,500	49,700
Industry	87,600	16,200	2,600	8,800	4,900	32,100	8,700	23,400
Educational institutions	108,200	47,400	33,700	13,100	600	10,600	3,800	6,800
Federal Government	35,100	13,700	5,000	6,500	2,100	14,100	3,400	10,700
State/local government	18,900	5,100	1,300	3,000	800	6,800	1,200	5,600
Nonprofit organizations	18,600	8,800	4,600	3,300	1,000	3,800	1,000	2,800
Other (1)	3,500	1,600	1,000	500	100	900	400	400

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Agricultural scientists	101,900	25,400	4,200	15,900	5,300	29,700	7,300	22,400
Industry	55,600	6,500	200	3,200	3,100	20,000	3,700	16,300
Educational institutions	24,300	12,600	3,100	8,200	1,300	3,300	1,400	1,800
Federal Government	8,300	3,200	700	2,000	400	2,400	900	1,500
State/local government	7,900	2,300	300	1,900	200	2,700	800	1,900
Nonprofit organizations	4,100	600	(3)	300	300	900	300	600
Other (1)	1,700	200	(3)	200	(3)	300	100	200
Medical scientists	32,000	12,700	7,300	4,700	700	8,000	3,400	4,500
Industry	5,500	1,800	100	1,300	400	3,000	1,500	1,500
Educational institutions	18,200	8,500	6,100	2,400	100	1,800	300	1,400
Federal Government	1,200	700	200	400	100	400	400	(3)
State/local government	800	300	(3)	200	(3)	200	(3)	200
Nonprofit organizations	5,400	1,200	700	200	200	2,200	700	1,500
Other (1)	800	300	200	200	(3)	400	400	(3)
Psychologists	239,700	17,000	8,100	6,800	2,100	61,300	10,000	51,300
Industry	88,200	3,100	500	1,200	1,300	29,700	3,300	26,400
Educational institutions	86,100	11,300	7,000	4,100	200	13,600	3,600	10,000
Federal Government	5,700	1,400	600	500	300	2,400	1,800	700
State/local government	13,000	400	(3)	300	100	2,400	400	2,000
Nonprofit organizations	43,100	800	(3)	700	200	13,000	1,000	12,000
Other (1)	3,600	(3)	(3)	(3)	(3)	200	(3)	200
Social scientists	381,700	47,200	12,500	26,700	8,000	142,000	20,700	121,300
Industry	185,600	10,400	900	6,100	3,400	90,400	9,000	81,400
Educational institutions	109,700	20,800	10,000	9,800	900	15,500	3,400	12,100
Federal Government	21,800	5,900	600	3,700	1,600	7,100	1,600	5,500
State/local government	31,900	3,600	100	2,200	1,300	14,200	2,400	11,800
Nonprofit organizations	23,300	5,500	700	4,200	600	10,600	3,800	6,800
Other (1)	9,300	1,100	100	700	300	4,200	500	3,700

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Economists	145,500	18,500	4,400	11,300	2,800	55,800	6,900	48,900
Industry	87,900	3,900	100	1,900	1,800	44,800	3,800	40,900
Educational institutions	34,200	8,100	3,300	4,700	(3)	3,100	1,100	2,000
Federal Government	12,000	3,600	400	2,500	600	3,400	1,200	2,200
State/local government	2,300	500	(3)	400	(3)	500	100	400
Nonprofit organizations	3,800	1,600	400	1,100	100	1,700	300	1,400
Other (1)	5,100	900	100	500	300	2,200	300	1,900
Sociologists/anthropologists	90,400	11,300	4,300	6,200	800	25,900	2,700	23,200
Industry	34,300	1,600	(3)	1,200	400	15,300	900	14,400
Educational institutions	32,500	5,500	3,700	1,800	(3)	3,600	800	2,800
Federal Government	2,000	900	200	700	(3)	700	100	600
State/local government	9,800	1,100	100	500	400	2,500	700	1,800
Nonprofit organizations	8,700	2,200	300	1,900	(3)	2,500	300	2,200
Other (1)	2,900	(3)	(3)	(3)	(3)	1,400	(3)	1,400
Other social scientists	145,800	17,400	3,800	9,200	4,400	60,300	11,100	49,200
Industry	63,300	5,000	700	3,000	1,200	30,300	4,300	26,000
Educational institutions	43,000	7,200	3,000	3,300	900	8,900	1,600	7,300
Federal Government	7,700	1,400	(3)	500	900	3,000	300	2,700
State/local government	19,800	2,000	(3)	1,200	800	11,200	1,600	9,600
Nonprofit organizations	10,800	1,800	(3)	1,200	500	6,300	3,100	3,200
Other (1)	1,200	100	(3)	100	(3)	600	200	400
Total engineers	2,560,600	847,800	13,100	94,200	740,500	791,800	252,100	539,600
Industry	2,060,100	716,400	5,100	54,700	656,600	630,100	204,600	425,600
Educational institutions	96,500	28,900	4,200	13,900	10,800	13,200	2,700	10,500
Federal Government	193,700	60,100	2,600	16,400	41,100	74,100	30,300	43,800
State/local government	119,300	19,400	500	2,200	16,600	47,600	3,500	44,100
Nonprofit organizations	41,300	12,400	200	4,800	7,300	15,100	8,000	7,100
Other (1)	49,700	10,800	500	2,200	8,100	11,600	3,100	8,500

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Aeronautical/astronautical	111,600	52,100	1,000	8,500	42,600	35,600	22,200	13,400
Industry	83,500	43,200	500	4,800	37,900	25,400	15,700	9,800
Educational institutions	3,600	800	(3)	300	500	800	100	700
Federal Government	19,100	6,200	400	2,600	3,200	7,500	4,700	2,700
State/local government	200	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Nonprofit organizations	2,500	1,100	(3)	400	700	1,100	1,100	(3)
Other (1)	2,800	700	100	300	400	700	600	200
Chemical	163,100	61,900	1,200	8,800	51,900	55,100	16,700	38,500
Industry	146,000	55,300	400	5,900	48,900	50,200	13,700	36,400
Educational institutions	4,800	2,000	400	1,200	300	500	200	300
Federal Government	5,600	3,000	100	1,200	1,700	1,700	1,200	600
State/local government	1,200	200	(3)	(3)	200	400	(3)	400
Nonprofit organizations	2,500	800	100	300	300	1,700	1,600	100
Other (1)	2,900	800	(3)	200	600	700	(3)	600
Civil	365,700	64,300	400	7,900	56,000	130,900	16,400	114,500
Industry	227,400	40,600	(3)	2,800	37,800	76,000	11,500	64,500
Educational institutions	11,700	2,900	100	2,200	500	1,900	100	1,700
Federal Government	34,100	6,200	(3)	1,200	5,000	15,300	1,900	13,500
State/local government	80,600	13,200	200	1,300	11,700	34,700	2,500	32,200
Nonprofit organizations	1,800	200	(3)	(3)	200	800	200	500
Other (1)	10,100	1,200	(3)	400	800	2,200	100	2,100
Electrical/electronics	581,300	244,000	2,500	22,900	218,600	177,400	82,700	94,700
Industry	475,900	207,700	1,300	13,400	193,000	146,800	67,500	79,300
Educational institutions	23,500	8,200	800	3,300	4,200	3,400	1,200	2,200
Federal Government	53,600	19,900	300	4,700	14,900	18,000	10,400	7,700
State/local government	6,500	1,600	(3)	(3)	1,600	1,900	100	1,800
Nonprofit organizations	9,500	3,700	(3)	1,300	2,300	3,700	1,900	1,800
Other (1)	12,200	2,900	100	300	2,500	3,700	1,600	2,100

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Industrial	150,900	28,100	200	1,100	26,800	55,100	8,300	46,800
Industry	134,200	26,200	100	900	25,100	51,200	7,400	43,900
Educational institutions	4,700	400	100	100	300	100	(3)	100
Federal Government	7,300	1,100	(3)	(3)	1,000	2,700	900	1,800
State/local government	1,000	200	(3)	100	100	200	(3)	200
Nonprofit organizations	1,800	200	(3)	(3)	200	700	(3)	700
Other (1)	2,000	100	(3)	(3)	100	200	(3)	200
Materials	59,300	23,800	1,400	6,800	15,600	15,900	6,000	9,900
Industry	50,000	18,700	200	4,700	13,900	14,600	5,400	9,100
Educational institutions	4,600	2,300	700	1,200	400	300	(3)	300
Federal Government	2,800	1,800	500	600	700	400	100	300
State/local government	700	400	(3)	(3)	400	(3)	(3)	(3)
Nonprofit organizations	1,100	500	(3)	200	200	500	400	100
Other (1)	200	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Mechanical	513,700	215,200	2,900	15,200	197,100	158,300	54,500	103,900
Industry	446,400	193,400	1,200	9,800	182,300	141,300	47,500	93,800
Educational institutions	19,400	6,200	1,300	2,100	2,800	1,700	600	1,000
Federal Government	29,300	10,800	400	2,500	7,900	10,400	4,700	5,700
State/local government	4,200	800	(3)	(3)	800	1,200	200	1,000
Nonprofit organizations	6,600	1,800	(3)	300	1,500	2,100	1,200	900
Other (1)	7,800	2,300	100	400	1,800	1,700	300	1,400
Mining	19,000	2,900	400	800	1,700	4,400	1,200	3,200
Industry	16,100	2,200	(3)	600	1,600	3,800	1,000	2,800
Educational institutions	900	300	200	100	(3)	(3)	(3)	(3)
Federal Government	1,200	200	100	(3)	(3)	400	100	300
State/local government	600	100	100	(3)	(3)	200	100	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Other (1)	100	100	(3)	(3)	(3)	(3)	(3)	(3)

Table 12 cont.

Field and sector of employment	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Nuclear	25,300	6,400	200	2,100	4,100	9,400	2,700	6,700
Industry	16,500	4,500	100	1,000	3,400	5,100	1,300	3,800
Educational institutions	600	300	(3)	200	100	100	100	(3)
Federal Government	5,400	1,200	(3)	600	600	2,600	1,200	1,500
State/local government	600	(3)	(3)	(3)	(3)	500	(3)	500
Nonprofit organizations	700	200	(3)	200	(3)	500	100	400
Other (1)	1,600	200	100	100	(3)	500	(3)	500
Petroleum	38,400	7,300	100	1,100	6,100	7,200	1,300	5,900
Industry	35,800	7,100	(3)	1,100	6,000	6,500	1,300	5,200
Educational institutions	800	100	(3)	(3)	100	100	(3)	100
Federal Government	800	100	(3)	(3)	100	300	(3)	300
State/local government	600	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Nonprofit organizations	300	(3)	(3)	(3)	(3)	300	(3)	300
Other (1)	100	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Other engineers	532,100	141,800	2,800	19,100	119,900	142,300	40,100	102,300
Industry	428,300	117,600	1,200	9,700	106,600	109,100	32,100	77,000
Educational institutions	21,700	5,400	500	3,200	1,600	4,400	300	4,100
Federal Government	34,500	9,500	700	2,800	6,000	14,600	5,200	9,400
State/local government	23,300	2,800	200	800	1,900	8,500	500	8,000
Nonprofit organizations	14,500	4,000	100	2,000	2,000	3,800	1,500	2,300
Other (1)	9,900	2,500	100	600	1,800	1,900	400	1,500

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Total, all fields	345,000	625,000	433,400	578,900
Industry	17,500	485,600	316,500	440,200
Educational institutions	307,300	13,100	20,400	37,800
Federal Government	3,000	51,600	46,000	17,000
State/local government	5,800	50,200	26,700	23,600
Nonprofit organizations	6,900	12,600	15,900	38,400
Other (1)	4,400	11,900	7,900	21,900
Total scientists	288,700	160,200	325,000	287,400
Industry	8,400	117,300	233,300	187,300
Educational institutions	265,100	6,200	18,700	34,200
Federal Government	1,400	14,000	34,900	7,800
State/local government	4,300	14,700	18,600	16,200
Nonprofit organizations	6,500	5,500	13,900	34,100
Other (1)	3,000	2,500	5,600	7,800
Physical scientists	42,800	37,100	7,000	13,500
Industry	400	26,900	4,600	9,400
Educational institutions	42,100	800	200	1,000
Federal Government	(3)	3,200	1,400	600
State/local government	(3)	4,900	200	400
Nonprofit organizations	(3)	1,000	500	800
Other (1)	200	400	100	1,300
Chemists	25,100	31,900	4,100	8,100
Industry	200	24,200	3,400	6,600
Educational institutions	24,800	200	(3)	200
Federal Government	(3)	2,400	500	(3)
State/local government	(3)	4,400	(3)	300
Nonprofit organizations	(3)	400	100	500
Other (1)	100	200	100	600

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Physicists/astronomers	14,300	2,800	1,700	2,400
Industry	100	1,100	600	1,400
Educational institutions	14,100	500	100	500
Federal Government	(3)	500	600	200
State/local government	(3)	(3)	(3)	(3)
Nonprofit organizations	(3)	500	400	100
Other (1)	100	200	(3)	300
Other physical scientists	3,400	2,400	1,200	3,000
Industry	100	1,600	500	1,400
Educational institutions	3,300	100	100	300
Federal Government	(3)	300	300	400
State/local government	(3)	400	200	100
Nonprofit organizations	(3)	(3)	100	300
Other (1)	(3)	(3)	(3)	500
Mathematical scientists	44,600	3,300	13,400	4,400
Industry	200	3,000	7,500	3,300
Educational institutions	43,900	(3)	1,400	700
Federal Government	500	300	2,800	100
State/local government	(3)	(3)	800	100
Nonprofit organizations	(3)	(3)	800	100
Other (1)	(3)	(3)	100	(3)
Mathematicians	41,800	2,600	5,600	3,400
Industry	100	2,300	3,900	2,900
Educational institutions	41,300	(3)	200	300
Federal Government	400	200	1,200	100
State/local government	(3)	(3)	100	100
Nonprofit organizations	(3)	(3)	100	(3)
Other (1)	(3)	(3)	100	(3)

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Statisticians	2,800	700	7,800	1,000
Industry	100	700	3,600	500
Educational institutions	2,600	(3)	1,100	400
Federal Government	(3)	(3)	1,500	(3)
State/local government	(3)	(3)	700	(3)
Nonprofit organizations	(3)	(3)	700	(3)
Other (1)	(3)	(3)	(3)	(3)
Computer specialists	16,400	15,300	246,900	41,200
Industry	4,000	13,100	193,600	37,100
Educational institutions	12,000	500	11,300	900
Federal Government	200	1,200	19,700	1,200
State/local government	100	(3)	9,500	800
Nonprofit organizations	(3)	100	9,200	200
Other (1)	100	300	3,500	1,100
Environmental scientists	8,300	26,300	7,600	10,100
Industry	200	21,400	4,400	8,000
Educational institutions	7,700	200	200	100
Federal Government	400	2,900	2,000	700
State/local government	100	1,200	700	400
Nonprofit organizations	(3)	100	100	100
Other (1)	100	500	300	900
Earth scientists	7,500	24,200	5,100	8,800
Industry	100	20,900	3,100	7,300
Educational institutions	7,000	200	100	100
Federal Government	300	1,800	1,000	300
State/local government	100	1,100	600	400
Nonprofit organizations	(3)	100	100	100
Other (1)	100	200	100	700

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Oceanographers	100	100	100	100
Industry	(3)	(3)	(3)	100
Educational institutions	100	(3)	100	(3)
Federal Government	(3)	100	100	(3)
State/local government	(3)	(3)	(3)	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	(3)	(3)	(3)
Atmospheric scientists	600	2,000	2,500	1,200
Industry	(3)	500	1,300	600
Educational institutions	600	(3)	(3)	(3)
Federal Government	100	1,100	900	400
State/local government	(3)	100	100	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	300	200	200
Life scientists	62,100	47,900	11,300	47,800
Industry	900	32,500	4,400	31,200
Educational institutions	57,700	2,500	2,300	4,000
Federal Government	200	5,100	2,600	2,100
State/local government	800	4,700	1,300	3,500
Nonprofit organizations	1,500	2,600	600	5,900
Other (1)	900	500	100	1,000
Biological scientists	47,000	24,700	8,300	30,900
Industry	800	14,300	3,800	20,400
Educational institutions	44,900	1,300	1,700	2,300
Federal Government	100	4,200	1,600	1,500
State/local government	500	3,100	800	2,700
Nonprofit organizations	500	1,700	500	3,400
Other (1)	200	200	(3)	600

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Agricultural scientists	6,900	23,100	2,700	14,200
Industry	100	18,200	600	10,100
Educational institutions	5,600	1,300	500	1,000
Federal Government	100	1,000	1,000	600
State/local government	300	1,500	500	500
Nonprofit organizations	100	800	100	1,500
Other (1)	600	300	100	300
Medical scientists	8,100	100	300	2,700
Industry	(3)	(3)	100	700
Educational institutions	7,100	(3)	100	700
Federal Government	(3)	(3)	100	(3)
State/local government	(3)	(3)	(3)	300
Nonprofit organizations	900	100	(3)	1,000
Other (1)	100	(3)	(3)	(3)
Psychologists	40,300	11,600	4,500	105,000
Industry	1,400	8,100	1,800	44,200
Educational institutions	32,500	1,600	1,600	25,500
Federal Government	100	(3)	400	1,500
State/local government	2,500	500	400	6,700
Nonprofit organizations	3,300	1,100	200	24,600
Other (1)	400	300	200	2,400
Social scientists	74,200	18,700	34,100	65,400
Industry	1,300	12,400	17,000	54,200
Educational institutions	69,300	400	1,700	1,900
Federal Government	100	1,300	5,900	1,500
State/local government	700	3,500	5,700	4,300
Nonprofit organizations	1,600	700	2,400	2,500
Other (1)	1,300	400	1,300	1,100

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Economists	23,500	5,500	18,300	23,900
Industry	400	4,800	12,100	21,900
Educational institutions	22,500	(3)	200	400
Federal Government	100	500	3,600	900
State/local government	(3)	(3)	1,000	300
Nonprofit organizations	(3)	(3)	500	(3)
Other (1)	500	200	900	300
Sociologists/anthropologists	25,400	5,600	5,700	16,400
Industry	600	3,500	1,500	11,900
Educational institutions	22,500	200	300	500
Federal Government	(3)	(3)	500	(3)
State/local government	200	1,400	2,000	2,600
Nonprofit organizations	1,300	400	1,500	800
Other (1)	700	200	(3)	600
Other social scientists	25,400	7,500	10,100	25,100
Industry	200	4,100	3,400	20,300
Educational institutions	24,300	300	1,200	1,100
Federal Government	(3)	800	1,900	600
State/local government	500	2,000	2,800	1,400
Nonprofit organizations	300	300	400	1,700
Other (1)	100	(3)	400	100
Total engineers	56,300	464,700	108,400	291,500
Industry	9,200	368,300	83,200	252,800
Educational institutions	42,200	7,000	1,700	3,600
Federal Government	1,600	37,500	11,100	9,300
State/local government	1,500	35,400	8,100	7,400
Nonprofit organizations	400	7,100	2,000	4,300
Other (1)	1,500	9,400	2,300	14,100

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Aeronautical/astronautical	2,600	9,900	5,400	6,000
Industry	600	6,100	4,400	3,800
Educational institutions	1,800	100	100	(3)
Federal Government	100	3,200	800	1,300
State/local government	(3)	200	(3)	(3)
Nonprofit organizations	(3)	(3)	(3)	200
Other (1)	100	400	(3)	700
Chemical	2,100	28,300	4,600	11,000
Industry	300	27,300	3,900	9,000
Educational institutions	1,800	100	200	300
Federal Government	(3)	500	400	100
State/local government	(3)	400	100	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	(3)	(3)	1,400
Civil	7,400	79,500	15,200	68,300
Industry	400	44,000	7,800	58,600
Educational institutions	5,500	900	100	500
Federal Government	300	8,500	2,100	1,600
State/local government	700	23,700	4,800	3,500
Nonprofit organizations	(3)	100	200	600
Other (1)	500	2,400	200	3,600
Electrical/electronics	11,900	88,300	21,300	38,300
Industry	1,500	71,700	17,000	31,200
Educational institutions	9,300	1,200	400	1,100
Federal Government	600	9,500	2,900	2,700
State/local government	500	2,200	(3)	300
Nonprofit organizations	(3)	1,200	600	400
Other (1)	(3)	2,600	500	2,600

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Industrial	4,100	42,100	9,700	11,700
Industry	800	37,900	8,700	9,400
Educational institutions	3,300	500	100	200
Federal Government	(3)	2,200	600	700
State/local government	(3)	400	200	(3)
Nonprofit organizations	(3)	600	100	300
Other (1)	(3)	600	100	1,000
Materials	1,900	13,700	1,000	3,100
Industry	(3)	12,800	900	3,000
Educational institutions	1,900	100	(3)	(3)
Federal Government	(3)	500	(3)	(3)
State/local government	(3)	200	(3)	(3)
Nonprofit organizations	(3)	(3)	100	(3)
Other (1)	(3)	100	(3)	(3)
Mechanical	11,000	76,900	9,900	42,400
Industry	1,200	66,100	8,000	36,400
Educational institutions	9,400	1,100	200	800
Federal Government	100	6,000	800	1,200
State/local government	(3)	900	300	1,000
Nonprofit organizations	(3)	1,900	200	600
Other (1)	100	900	400	2,400
Mining	600	7,200	1,000	3,000
Industry	100	6,400	800	2,900
Educational institutions	500	100	(3)	(3)
Federal Government	(3)	300	200	100
State/local government	(3)	400	(3)	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	(3)	(3)	(3)

Table 12 cont.

Field and sector of employment	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
Nuclear	300	5,600	1,500	2,000
Industry	200	3,900	900	1,800
Educational institutions	100	(3)	100	(3)
Federal Government	(3)	1,100	400	(3)
State/local government	(3)	100	(3)	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	500	(3)	200
Petroleum	800	16,600	2,400	4,100
Industry	600	15,900	1,800	3,900
Educational institutions	200	500	(3)	(3)
Federal Government	(3)	(3)	200	100
State/local government	(3)	100	400	(3)
Nonprofit organizations	(3)	(3)	(3)	(3)
Other (1)	(3)	(3)	(3)	100
Other engineers	13,400	96,600	36,300	101,600
Industry	3,500	76,300	28,900	92,900
Educational institutions	8,300	2,500	500	600
Federal Government	500	5,600	2,800	1,400
State/local government	200	6,900	2,400	2,500
Nonprofit organizations	400	3,400	700	2,200
Other (1)	600	1,900	1,000	2,000

p = estimates for 1986 are preliminary

(1) Includes other government, military, other, and no report
(2) Includes consulting, other, and no report
(3) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 13. Employed scientists and engineers by field, sex, and primary work activity: 1976 and 1986p

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Total, all fields	2,331,200	4,615,700	655,500	1,310,900	69,500	142,700	147,700	264,500
Men	2,131,600	4,026,800	606,200	1,173,600	55,400	111,700	127,800	222,100
Women	199,700	588,900	49,300	137,300	14,100	31,000	19,800	42,400
Total scientists	959,500	2,055,100	231,000	463,000	63,400	129,600	102,400	170,300
Men	781,300	1,552,600	191,400	360,300	50,000	99,200	84,800	132,800
Women	178,200	502,500	39,600	102,700	13,400	30,300	17,600	37,500
Physical scientists	188,900	293,800	77,600	116,000	20,000	28,200	33,400	45,600
Men	172,700	261,200	70,700	102,700	17,600	25,300	30,100	40,000
Women	16,200	32,600	6,800	13,300	2,400	2,900	3,300	5,600
Chemists	132,800	195,200	50,300	75,100	8,200	11,900	22,600	30,300
Men	119,100	169,400	44,400	64,300	6,400	10,100	19,600	25,700
Women	13,700	25,800	6,000	10,800	1,800	1,800	3,000	4,700
Physicists/astronomers	44,300	70,800	20,900	30,200	10,300	13,600	7,300	10,100
Men	42,600	67,400	20,300	28,800	9,800	12,800	7,100	9,600
Women	1,700	3,400	600	1,500	500	800	100	400
Other physical scientists	11,800	27,800	6,300	10,700	1,500	2,600	3,500	5,200
Men	10,900	24,300	6,100	9,700	1,400	2,300	3,400	4,700
Women	800	3,500	200	1,000	100	300	100	500
Mathematical scientists	48,600	116,400	8,300	17,100	1,900	5,200	3,800	6,400
Men	37,100	91,400	6,400	14,100	1,900	4,900	2,900	5,100
Women	11,500	25,000	1,900	3,000	(2)	300	900	1,400
Mathematicians	43,400	97,200	7,400	13,600	1,800	4,900	3,100	4,200
Men	33,700	76,800	5,800	11,800	1,800	4,800	2,400	3,400
Women	9,700	20,400	1,700	1,800	(2)	100	700	800
Statisticians	5,200	19,200	900	3,500	(2)	300	700	2,300
Men	3,400	14,600	600	2,400	(2)	100	500	1,700
Women	1,800	4,600	200	1,100	(2)	200	200	600
Computer specialists	119,000	505,200	27,500	94,500	400	3,300	1,500	9,600
Men	98,400	374,100	21,600	71,200	300	2,200	1,200	7,300
Women	20,600	131,100	5,900	23,300	100	1,100	300	2,300

Table 13 cont.

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	54,800	112,500	22,900	40,200	6,500	12,600	12,900	19,500
Men	50,900	100,800	20,000	34,600	5,300	10,800	11,200	16,900
Women	3,900	11,700	2,900	5,600	1,200	1,800	1,700	2,600
Earth scientists	46,500	94,300	17,500	31,800	5,100	8,700	9,000	16,500
Men	42,900	84,400	14,800	27,400	4,000	7,500	7,400	14,100
Women	3,600	10,000	2,700	4,400	1,000	1,200	1,600	2,400
Oceanographers	4,400	3,700	3,800	2,700	200	1,200	3,500	900
Men	4,400	3,100	3,800	2,200	200	1,100	3,500	800
Women	(2)	600	(2)	500	(2)	100	(2)	(2)
Atmospheric scientists	3,800	14,400	1,600	5,700	1,200	2,800	300	2,200
Men	3,600	13,300	1,400	5,000	1,000	2,300	300	2,000
Women	300	1,100	200	700	200	500	(2)	200
Life scientists	213,500	405,900	64,800	130,900	26,300	59,700	31,400	55,700
Men	179,600	310,500	50,800	92,600	19,200	41,800	25,300	40,500
Women	33,900	95,400	14,000	38,300	7,100	18,000	6,100	15,200
Biological scientists	139,400	272,000	41,100	92,900	20,300	48,200	16,900	35,100
Men	115,300	202,000	31,100	63,200	14,800	32,900	12,700	24,200
Women	24,100	70,100	10,000	29,700	5,500	15,400	4,200	10,900
Agricultural scientists	40,700	101,900	10,900	25,400	1,200	4,200	7,300	15,900
Men	39,100	83,100	10,400	19,900	1,100	3,400	7,000	12,700
Women	1,600	18,800	500	5,400	100	900	400	3,200
Medical scientists	33,300	32,000	12,900	12,700	4,900	7,300	7,100	4,700
Men	25,100	25,300	9,300	9,500	3,400	5,500	5,600	3,500
Women	8,200	6,600	3,600	3,200	1,500	1,700	1,500	1,200
Psychologists	112,500	239,700	7,900	17,000	3,200	8,100	3,600	6,800
Men	76,900	139,300	5,900	10,100	2,200	4,700	2,500	4,500
Women	35,600	100,500	2,000	6,900	1,000	3,400	1,000	2,300
Social scientists	222,300	381,700	22,000	47,200	5,100	12,500	15,900	26,700
Men	165,700	275,400	15,900	35,000	3,500	9,600	11,600	18,600
Women	56,600	106,300	6,000	12,200	1,600	2,800	4,300	8,100

Table 13 cont.

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Economists	62,500	145,500	6,900	18,500	900	4,400	5,400	11,300
Men	54,600	124,200	6,300	15,900	700	3,700	5,000	9,500
Women	8,000	21,300	600	2,600	200	600	400	1,800
Sociologists/anthropologists	33,900	90,400	5,700	11,300	2,600	4,300	3,100	6,200
Men	22,500	53,500	3,700	7,100	1,600	3,400	2,100	3,300
Women	11,400	36,900	1,900	4,200	1,000	900	900	2,900
Other social scientists	125,900	145,800	9,400	17,400	1,600	3,800	7,400	9,200
Men	88,700	97,700	5,900	12,000	1,200	2,500	4,400	5,800
Women	37,200	48,100	3,500	5,400	500	1,300	2,900	3,500
Total engineers	1,371,700	2,560,600	424,500	847,800	6,100	13,100	45,300	94,200
Men	1,350,300	2,474,200	414,700	813,300	5,400	12,400	43,000	89,300
Women	21,400	86,400	9,800	34,600	700	700	2,300	4,900
Aeronautical/astronautical	56,800	111,600	25,400	52,100	900	1,000	4,500	8,500
Men	56,400	109,100	25,000	50,800	900	900	4,400	8,100
Women	400	2,600	400	1,300	(2)	100	100	400
Chemical	77,500	163,100	28,400	61,900	200	1,200	4,200	8,800
Men	75,000	152,800	27,800	55,800	200	1,100	3,800	8,200
Women	2,500	10,300	500	6,100	(2)	100	300	700
Civil	188,200	365,700	34,400	64,300	300	400	3,100	7,900
Men	182,800	354,900	31,900	60,600	300	300	2,300	7,500
Women	5,400	10,800	2,500	3,700	(2)	100	800	300
Electrical/electronics	283,000	581,300	114,300	244,000	1,400	2,500	10,400	22,900
Men	281,400	567,000	113,700	237,700	1,400	2,400	10,400	22,000
Women	1,600	14,300	600	6,300	(2)	100	(2)	900
Industrial	NA	150,900	NA	28,100	NA	200	NA	1,100
Men	NA	144,900	NA	26,500	NA	200	NA	900
Women	NA	6,100	NA	1,600	NA	(2)	NA	200
Materials	NA	59,300	NA	23,800	NA	1,400	NA	6,800
Men	NA	56,800	NA	22,200	NA	1,300	NA	6,600
Women	NA	2,500	NA	1,500	NA	100	NA	100

Table 13 cont.

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Mechanical	276,200	513,700	112,900	215,200	700	2,900	7,400	15,200
Men	273,900	501,000	112,100	209,700	700	2,800	7,400	14,400
Women	2,300	12,700	700	5,500	100	100	(2)	700
Mining	NA	19,000	NA	2,900	NA	400	NA	800
Men	NA	18,300	NA	2,700	NA	400	NA	700
Women	NA	700	NA	200	NA	(2)	NA	100
Nuclear	NA	25,300	NA	6,400	NA	200	NA	2,100
Men	NA	24,400	NA	6,300	NA	200	NA	2,000
Women	NA	900	NA	200	NA	(2)	NA	100
Petroleum	NA	38,400	NA	7,300	NA	100	NA	1,100
Men	NA	36,100	NA	6,500	NA	100	NA	1,000
Women	NA	2,400	NA	800	NA	(2)	NA	100
Other engineers	490,000	532,100	109,200	141,800	2,500	2,800	15,700	19,100
Men	480,900	509,000	104,200	134,400	1,800	2,700	14,700	17,800
Women	9,100	23,100	5,000	7,400	600	100	1,100	1,300

Table 13 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration					
	Development		Total		Of R & D		Other than R & D	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Total, all fields	438,400	903,700	687,100	1,322,500	220,000	409,900	467,100	912,600
Men	423,000	839,800	652,900	1,214,100	209,500	382,400	443,300	831,600
Women	15,400	63,900	34,200	108,500	10,400	27,500	23,800	81,000
Total scientists	65,200	163,200	263,500	530,800	88,300	157,800	175,100	373,000
Men	56,600	128,300	232,600	435,000	79,700	134,100	152,900	300,900
Women	8,600	34,900	30,900	95,800	8,600	23,700	22,300	72,100
Physical scientists	24,200	42,300	50,700	77,300	29,900	43,500	20,800	33,900
Men	23,000	37,500	48,400	74,600	29,300	42,200	19,000	32,500
Women	1,200	4,800	2,300	2,700	600	1,300	1,700	1,400
Chemists	19,500	32,900	38,600	50,800	22,000	26,100	16,600	24,700
Men	18,400	28,500	36,700	48,700	21,500	25,200	15,200	23,500
Women	1,200	4,400	1,900	2,000	500	900	1,400	1,200
Physicists/astronomers	3,400	6,500	9,200	19,500	6,500	13,900	2,800	5,600
Men	3,400	6,300	8,900	19,000	6,400	13,500	2,500	5,500
Women	(2)	200	300	400	100	400	200	100
Other physical scientists	1,200	2,900	2,900	7,100	1,500	3,500	1,400	3,600
Men	1,200	2,700	2,700	6,900	1,500	3,500	1,300	3,400
Women	(2)	200	100	300	(2)	100	100	200
Mathematical scientists	2,600	5,500	13,800	33,600	6,200	16,500	7,600	17,000
Men	1,600	4,200	12,200	26,400	4,900	12,600	7,300	13,800
Women	1,000	1,300	1,600	7,200	1,300	4,000	300	3,200
Mathematicians	2,500	4,500	11,900	30,200	4,400	14,600	7,400	15,600
Men	1,600	3,600	10,900	23,400	3,700	10,900	7,100	12,500
Women	1,000	900	1,000	6,800	700	3,700	300	3,100
Statisticians	100	900	1,900	3,400	1,800	1,900	200	1,500
Men	100	600	1,300	3,000	1,100	1,700	200	1,300
Women	(2)	300	600	400	600	200	(2)	200
Computer specialists	25,600	81,600	24,800	90,800	8,200	31,700	16,600	59,200
Men	20,100	61,700	22,800	76,100	7,400	27,200	15,400	48,800
Women	5,500	19,900	2,000	14,700	900	4,400	1,200	10,300

Table 13 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration					
	Development		Total		Of R & D		Other than R & D	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	3,600	8,100	14,900	19,900	6,500	6,200	8,400	13,700
Men	3,500	6,900	14,800	18,700	6,400	5,800	8,400	12,900
Women	100	1,200	200	1,200	200	400	(2)	800
Earth scientists	3,500	6,700	13,800	16,900	6,000	4,900	7,800	12,000
Men	3,400	5,900	13,700	15,800	5,800	4,500	7,800	11,300
Women	100	900	100	1,100	100	400	(2)	700
Oceanographers	(2)	700	300	600	200	400	100	200
Men	(2)	300	300	500	200	400	100	200
Women	(2)	400	(2)	100	(2)	(2)	(2)	100
Atmospheric scientists	100	800	800	2,400	400	1,000	500	1,400
Men	100	700	800	2,300	300	900	500	1,400
Women	(2)	(2)	(2)	100	(2)	100	(2)	(2)
Life scientists	7,100	15,500	62,300	105,800	18,600	29,200	43,700	76,600
Men	6,400	10,400	56,600	90,700	17,600	25,200	39,100	65,400
Women	800	5,100	5,700	15,200	1,100	4,000	4,600	11,200
Biological scientists	3,900	9,500	37,100	68,200	12,500	18,500	24,600	49,700
Men	3,700	6,000	34,000	57,200	11,600	15,000	22,400	42,200
Women	200	3,500	3,100	11,000	900	3,500	2,200	7,500
Agricultural scientists	2,400	5,300	11,900	29,700	4,300	7,300	7,600	22,400
Men	2,400	3,900	11,700	27,200	4,200	7,100	7,500	20,200
Women	(2)	1,400	200	2,400	100	200	100	2,200
Medical scientists	900	700	13,400	8,000	1,900	3,400	11,600	4,500
Men	300	500	11,000	6,200	1,700	3,100	9,200	3,100
Women	600	300	2,500	1,700	100	300	2,300	1,400
Psychologists	1,200	2,100	22,000	61,300	4,600	10,000	17,400	51,300
Men	1,200	900	17,400	39,400	3,900	7,000	13,500	32,400
Women	(2)	1,200	4,600	21,900	700	3,000	3,900	18,900
Social scientists	1,000	8,000	74,800	142,000	14,200	20,700	60,700	121,300
Men	900	6,800	60,400	109,100	10,300	14,000	50,100	95,100
Women	100	1,200	14,400	32,900	3,900	6,600	10,500	26,300

Table 13 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration					
	Development		Total		Of R & D		Other than R & D	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Economists	600	2,800	24,300	55,800	4,600	6,900	19,700	48,900
Men	600	2,600	23,100	49,600	3,700	6,400	19,400	43,200
Women	(2)	200	1,200	6,200	900	500	300	5,700
Sociologists/anthropologists	(2)	800	7,400	25,900	1,400	2,700	6,100	23,200
Men	(2)	400	5,000	16,200	1,000	1,700	4,000	14,500
Women	(2)	400	2,400	9,800	400	1,000	2,100	8,700
Other social scientists	400	4,400	43,100	60,300	8,200	11,100	34,900	49,200
Men	300	3,800	32,300	43,400	5,600	6,000	26,700	37,300
Women	100	600	10,800	16,900	2,600	5,100	8,100	11,800
Total engineers	373,100	740,500	423,600	791,800	131,700	252,100	292,000	539,600
Men	366,400	711,500	420,300	779,100	129,800	248,400	290,500	530,700
Women	6,800	29,000	3,300	12,700	1,800	3,800	1,500	8,900
Aeronautical/astronautical	20,000	42,600	19,000	35,600	13,900	22,200	5,100	13,400
Men	19,700	41,800	19,000	35,300	13,900	22,100	5,100	13,200
Women	300	800	(2)	200	(2)	100	(2)	200
Chemical	24,000	51,900	28,600	55,100	8,600	16,700	20,000	38,500
Men	23,800	46,500	28,100	54,600	8,100	16,500	20,000	38,000
Women	200	5,400	500	600	500	100	(2)	500
Civil	31,000	56,000	64,800	130,900	6,000	16,400	58,800	114,500
Men	29,300	52,800	64,000	129,000	6,000	16,300	58,000	112,700
Women	1,700	3,300	800	1,900	(2)	100	800	1,800
Electrical/electronics	102,500	218,600	87,100	177,400	38,900	82,700	48,200	94,700
Men	101,900	213,300	86,900	175,000	38,700	81,600	48,200	93,500
Women	600	5,300	200	2,400	200	1,200	(2)	1,200
Industrial	NA	26,800	NA	55,100	NA	8,300	NA	46,800
Men	NA	25,400	NA	53,600	NA	7,700	NA	45,900
Women	NA	1,400	NA	1,500	NA	600	NA	900
Materials	NA	15,600	NA	15,900	NA	6,000	NA	9,900
Men	NA	14,300	NA	15,700	NA	5,900	NA	9,800
Women	NA	1,300	NA	100	NA	100	NA	100

Table 13 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration					
	Development		Total		Of R & D		Other than R & D	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Mechanical	104,700	197,100	88,800	158,300	29,700	54,500	59,100	103,900
Men	104,100	192,500	87,900	157,300	28,700	54,200	59,100	103,100
Women	700	4,600	1,000	1,100	1,000	300	(2)	800
Mining	NA	1,700	NA	4,400	NA	1,200	NA	3,200
Men	NA	1,600	NA	4,400	NA	1,200	NA	3,100
Women	NA	100	NA	(2)	NA	(2)	NA	(2)
Nuclear	NA	4,100	NA	9,400	NA	2,700	NA	6,700
Men	NA	4,000	NA	9,300	NA	2,700	NA	6,500
Women	NA	100	NA	200	NA	(2)	NA	200
Petroleum	NA	6,100	NA	7,200	NA	1,300	NA	5,900
Men	NA	5,500	NA	6,700	NA	1,300	NA	5,400
Women	NA	600	NA	500	NA	(2)	NA	500
Other engineers	91,000	119,900	135,300	142,300	34,600	40,100	100,700	102,300
Men	87,700	113,900	134,500	138,200	34,400	38,700	100,100	99,400
Women	3,300	6,000	800	4,100	200	1,300	600	2,800

Table 13 cont.

Field and sex	Primary work activity							
	Teaching		Production/ inspection		Reporting, stat work, computing		Other (1)	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Total, all fields	163,300	345,000	253,000	625,000	107,700	433,400	464,700	578,900
Men	131,800	273,300	241,300	572,100	88,600	322,500	410,900	471,200
Women	31,500	71,700	11,700	52,800	19,100	110,900	53,800	107,700
Total scientists	141,300	288,700	58,500	160,200	70,300	325,000	195,000	287,400
Men	109,900	220,900	50,200	126,000	52,100	222,200	145,100	188,100
Women	31,400	67,800	8,300	34,200	18,100	102,700	50,000	99,200
Physical scientists	22,700	42,800	19,700	37,100	3,800	7,000	14,500	13,500
Men	20,300	37,700	17,600	29,700	3,000	5,300	12,600	11,200
Women	2,300	5,100	2,100	7,400	700	1,800	1,800	2,300
Chemists	13,300	25,100	18,000	31,900	2,000	4,100	10,500	8,100
Men	11,600	21,900	16,000	25,000	1,300	2,700	9,100	6,900
Women	1,800	3,300	1,900	6,900	700	1,500	1,400	1,300
Physicists/astronomers	8,400	14,300	1,300	2,800	1,200	1,700	3,200	2,400
Men	7,900	13,100	1,100	2,600	1,200	1,600	3,100	2,300
Women	500	1,200	100	200	(2)	100	100	100
Other physical scientists	900	3,400	400	2,400	500	1,200	700	3,000
Men	800	2,700	400	2,100	500	1,000	500	2,000
Women	100	700	100	300	(2)	200	300	1,000
Mathematical scientists	17,400	44,600	2,000	3,300	4,500	13,400	2,600	4,400
Men	12,500	35,600	1,400	2,900	2,500	9,700	2,200	2,700
Women	5,000	9,000	600	400	2,000	3,700	400	1,700
Mathematicians	16,900	41,800	1,800	2,600	3,200	5,600	2,200	3,400
Men	12,000	33,100	1,200	2,300	1,900	4,300	1,900	1,900
Women	4,900	8,800	500	300	1,400	1,300	300	1,400
Statisticians	500	2,800	200	700	1,200	7,800	400	1,000
Men	500	2,500	200	700	600	5,400	300	700
Women	(2)	300	100	100	700	2,400	100	300
Computer specialists	3,800	16,400	4,000	15,300	38,700	246,900	20,300	41,200
Men	2,900	10,800	3,100	11,900	31,700	171,500	16,400	32,600
Women	900	5,600	900	3,300	7,000	75,400	3,900	8,600

Table 13 cont.

Field and sex	Primary work activity							
	Teaching		Production/ inspection		Reporting, stat work, computing		Other (1)	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Environmental scientists	3,100	8,300	3,400	26,300	2,300	7,600	8,100	10,100
Men	2,700	7,300	3,300	24,300	2,100	6,600	8,100	9,300
Women	400	1,000	100	2,100	200	1,000	100	800
Earth scientists	3,000	7,500	3,000	24,200	1,700	5,100	7,500	8,800
Men	2,600	6,600	2,800	22,200	1,500	4,200	7,400	8,100
Women	300	900	100	2,000	200	900	100	700
Oceanographers	(2)	100	200	100	(2)	100	100	100
Men	(2)	100	200	100	(2)	100	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	100	600	200	2,000	500	2,500	500	1,200
Men	100	600	200	1,900	500	2,300	500	1,100
Women	(2)	(2)	(2)	(2)	(2)	200	(2)	100
Life scientists	29,300	62,100	14,900	47,900	3,200	11,300	38,800	47,800
Men	23,300	47,900	12,800	36,600	2,400	8,500	33,600	34,200
Women	6,000	14,200	2,100	11,300	800	2,900	5,200	13,600
Biological scientists	22,400	47,000	9,200	24,700	2,300	8,300	27,400	30,900
Men	18,000	35,000	7,600	18,800	1,500	6,300	23,100	21,500
Women	4,300	12,000	1,600	5,900	800	2,100	4,400	9,400
Agricultural scientists	2,500	6,900	5,600	23,100	700	2,700	9,300	14,200
Men	2,400	5,900	5,100	17,700	600	2,000	8,900	10,300
Women	100	1,000	400	5,400	(2)	700	400	3,800
Medical scientists	4,400	8,100	100	100	300	300	2,100	2,700
Men	2,900	6,900	100	100	300	200	1,700	2,400
Women	1,600	1,200	100	100	(2)	100	400	300
Psychologists	21,600	40,300	1,800	11,600	1,300	4,500	57,700	105,000
Men	14,300	27,000	1,300	7,300	700	2,200	37,300	53,300
Women	7,400	13,400	600	4,300	600	2,300	20,400	51,700
Social scientists	43,400	74,200	12,600	18,700	16,500	34,100	52,900	65,400
Men	34,000	54,700	10,700	13,200	9,800	18,400	34,900	44,900
Women	9,400	19,500	1,900	5,400	6,700	15,700	18,100	20,500

Table 13 cont.

Field and sex	Primary work activity							
	Teaching		Production/ inspection		Reporting, stat work, computing		Other (1)	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Economists	9,800	23,500	1,300	5,500	7,700	18,300	12,500	25,900
Men	8,500	20,900	1,200	5,200	4,600	12,200	10,900	20,400
Women	1,300	2,600	200	300	3,100	6,100	1,600	5,500
Sociologists/anthropologists	9,600	25,400	600	5,600	3,300	5,700	7,300	16,400
Men	7,300	16,400	500	2,300	2,100	2,000	3,900	9,400
Women	2,300	9,000	100	3,300	1,200	3,700	3,400	7,000
Other social scientists	24,000	25,400	10,700	7,500	5,600	10,100	33,200	25,100
Men	18,200	17,400	9,100	5,700	3,100	4,200	20,100	15,100
Women	5,800	8,000	1,600	1,800	2,400	5,900	13,000	10,000
Total engineers	22,000	56,300	194,500	464,700	37,400	108,400	269,700	291,500
Men	21,900	52,300	191,100	446,100	36,400	100,200	265,800	283,100
Women	200	3,900	3,400	18,600	1,000	8,200	3,900	8,400
Aeronautical/astronautical	1,000	2,600	4,400	9,900	2,200	5,400	4,800	6,000
Men	1,000	2,500	4,300	9,400	2,200	5,200	4,800	5,800
Women	(2)	100	100	500	(2)	200	(2)	200
Chemical	600	2,100	10,300	28,300	1,400	4,600	8,200	11,000
Men	600	2,000	9,000	26,000	1,300	4,000	8,100	10,400
Women	(2)	100	1,300	2,300	100	600	100	600
Civil	2,300	7,400	38,400	79,500	6,100	15,200	42,200	68,300
Men	2,200	7,000	38,100	77,600	5,600	14,400	41,000	66,300
Women	100	500	300	1,900	400	900	1,200	2,000
Electrical/electronics	4,800	11,900	30,200	88,300	6,500	21,300	40,200	38,300
Men	4,800	11,300	30,000	85,800	6,500	19,800	39,600	37,300
Women	(2)	600	200	2,600	(2)	1,500	600	1,000
Industrial	NA	4,100	NA	42,100	NA	9,700	NA	11,700
Men	NA	4,100	NA	40,800	NA	8,900	NA	10,900
Women	NA	(2)	NA	1,400	NA	900	NA	700
Materials	NA	1,900	NA	13,700	NA	1,000	NA	3,100
Men	NA	1,900	NA	13,100	NA	900	NA	3,000
Women	NA	(2)	NA	600	NA	100	NA	100

Table 13 cont.

Field and sex	Primary work activity							
	Teaching		Production/ inspection		Reporting, stat work, computing		Other (1)	
	1976	1986p	1976	1986p	1976	1986p	1976	1986p
Mechanical	5,500	11,000	30,600	76,900	3,200	9,900	35,200	42,400
Men	5,500	9,200	30,000	73,900	3,200	9,200	35,200	41,800
Women	(2)	1,800	600	3,000	(2)	700	100	700
Mining	NA	600	NA	7,200	NA	1,000	NA	3,000
Men	NA	500	NA	6,800	NA	1,000	NA	2,900
Women	NA	(2)	NA	300	NA	100	NA	(2)
Nuclear	NA	300	NA	5,600	NA	1,500	NA	2,000
Men	NA	300	NA	5,300	NA	1,300	NA	1,900
Women	NA	(2)	NA	300	NA	200	NA	100
Petroleum	NA	800	NA	16,600	NA	2,400	NA	4,100
Men	NA	800	NA	15,900	NA	2,300	NA	3,900
Women	NA	(2)	NA	700	NA	200	NA	300
Other engineers	7,900	13,400	80,700	96,600	18,000	36,300	139,000	101,600
Men	7,900	12,700	79,700	91,500	17,600	33,300	137,000	98,900
Women	(2)	700	900	5,100	400	3,000	1,900	2,800

p = estimates for 1986 are preliminary data

(1) Includes consulting, other, and no report
(2) Too few cases to estimate
NA = Not available

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 14. Employed doctoral scientists and engineers by field, sex, and primary work activity: 1975 and 1985

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1975	1985	1975	1985	1975	1985	1975	1985
Total, all fields	255,900	400,400	82,400	132,500	38,100	61,500	32,900	49,100
Men	233,900	341,900	76,400	116,100	33,700	51,300	31,600	44,200
Women	22,100	58,500	6,000	16,500	4,500	10,100	1,300	4,900
Total scientists	213,500	334,500	65,900	106,700	36,500	57,800	24,900	37,700
Men	191,700	277,500	60,100	91,000	32,100	47,900	23,600	33,100
Women	21,800	57,000	5,900	15,800	4,400	10,000	1,300	4,600
Physical scientists	54,600	67,500	22,700	29,900	10,900	14,300	9,700	11,900
Men	52,100	62,800	21,800	27,900	10,200	13,300	9,500	11,100
Women	2,500	4,700	1,000	2,000	600	1,100	300	800
Chemists	35,800	43,700	13,800	18,400	6,100	8,000	6,300	7,800
Men	33,800	39,900	13,000	16,800	5,600	7,200	6,100	7,200
Women	2,100	3,800	800	1,600	500	800	200	600
Physicists/astronomers	18,800	23,700	8,900	11,500	4,800	6,400	3,400	4,100
Men	18,300	22,900	8,700	11,100	4,700	6,100	3,400	3,900
Women	500	900	200	500	100	300	(2)	100
Mathematical scientists	13,600	16,800	2,700	4,000	1,600	2,300	800	1,100
Men	12,700	15,200	2,600	3,700	1,500	2,200	800	1,000
Women	900	1,600	100	300	100	100	(2)	100
Mathematicans	11,900	13,900	2,300	3,200	1,400	2,100	600	700
Men	11,000	12,700	2,300	3,000	1,400	2,000	600	700
Women	800	1,200	100	200	100	100	(2)	(2)
Statisticians	1,700	2,800	400	800	100	200	200	400
Men	1,700	2,500	400	700	100	200	200	400
Women	100	300	(2)	100	(2)	(2)	(2)	(2)
Computer specialists	3,500	15,000	1,400	6,100	200	1,000	400	1,000
Men	3,400	13,300	1,300	5,500	200	900	300	900
Women	100	1,600	100	600	(2)	100	(2)	100

Table 14 cont.

Field and sex	Primary work activity							
	Total		Research and development					
	1975	1985	Total		Basic research		Applied research	
			1975	1985	1975	1985	1975	1985
Environmental scientists	12,100	17,300	4,600	6,800	2,300	3,600	2,100	2,900
Men	11,800	16,200	4,400	6,300	2,200	3,200	2,100	2,800
Women	300	1,100	100	500	100	300	(2)	100
Earth scientists	9,500	13,200	3,100	4,400	1,300	2,000	1,600	2,300
Men	9,300	12,400	3,000	4,200	1,300	1,800	1,600	2,200
Women	200	800	100	300	100	100	(2)	100
Oceanographers	1,300	2,000	600	1,100	500	1,000	100	200
Men	1,200	1,700	600	1,000	500	800	100	200
Women	100	200	(2)	200	(2)	200	(2)	(2)
Atmospheric scientists	1,300	2,100	900	1,200	400	600	400	500
Men	1,300	2,000	900	1,200	400	600	400	500
Women	(2)	100	(2)	100	(2)	(2)	(2)	(2)
Life scientists	63,300	101,800	25,700	44,600	17,500	31,000	7,500	11,900
Men	55,800	82,100	22,300	35,800	14,600	24,200	7,100	10,100
Women	7,500	19,700	3,400	8,800	2,900	6,800	500	1,700
Biological scientists	39,000	59,900	16,900	30,100	13,700	24,700	2,900	4,700
Men	33,300	47,200	14,100	23,100	11,200	18,800	2,700	3,800
Women	5,800	12,600	2,800	7,000	2,500	5,900	300	900
Agricultural scientists	11,000	15,500	4,800	7,000	1,200	1,900	3,400	4,800
Men	10,800	14,700	4,700	6,700	1,200	1,800	3,300	4,500
Women	100	800	100	400	(2)	100	(2)	200
Medical scientists	13,300	26,500	4,000	7,500	2,600	4,300	1,200	2,400
Men	11,700	20,200	3,500	6,000	2,200	3,500	1,100	1,800
Women	1,600	6,200	500	1,500	400	800	100	600
Psychologists	30,000	52,200	3,400	5,200	1,900	2,300	1,300	2,400
Men	23,700	35,600	2,800	3,700	1,500	1,600	1,100	1,800
Women	6,300	16,600	700	1,500	400	700	200	700

Table 14 cont.

Field and sex	Primary work activity							
	Total		Research and development					
			Total		Basic research		Applied research	
	1975	1985	1975	1985	1975	1985	1975	1985
Social scientists	36,300	64,000	5,400	10,100	2,200	3,300	3,000	6,500
Men	32,200	52,200	4,800	8,100	1,900	2,500	2,700	5,300
Women	4,100	11,800	600	2,000	300	800	300	1,100
Economists	11,800	17,900	2,400	4,400	600	900	1,800	3,500
Men	11,200	16,200	2,300	3,900	500	800	1,700	3,100
Women	600	1,700	100	500	(2)	100	100	400
Sociologists/anthropologists	7,900	12,700	1,200	1,600	700	1,100	500	500
Men	6,300	9,100	900	1,200	600	800	400	400
Women	1,700	3,600	300	400	200	300	100	200
Other social scientists	16,600	33,400	1,800	4,100	1,000	1,400	700	2,400
Men	14,800	27,000	1,600	3,000	800	900	700	1,800
Women	1,800	6,400	200	1,100	100	500	(2)	600
Total engineers	42,400	65,900	16,400	25,800	1,600	3,600	8,000	11,400
Men	42,200	64,400	16,300	25,100	1,600	3,500	8,000	11,100
Women	200	1,500	100	700	(2)	100	(2)	300
Aeronautical/astronautical	2,000	3,800	1,000	1,900	200	300	500	700
Men	2,000	3,700	1,000	1,800	200	300	500	700
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)
Chemical	5,400	7,100	2,000	3,200	100	400	900	1,500
Men	5,300	7,000	2,000	3,100	100	400	900	1,500
Women	(2)	100	(2)	100	(2)	(2)	(2)	(2)
Civil	3,800	6,400	700	1,400	100	300	300	500
Men	3,800	6,300	700	1,300	(2)	300	300	500
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)

Table 14 cont.

Field and sex	Primary work activity							
	Total		Research and development					
	1975	1985	Total		Basic research		Applied research	
			1975	1985	1975	1985	1975	1985
Electrical/electronics	8,500	14,300	3,700	5,300	200	500	1,500	1,900
Men	8,500	13,900	3,600	5,100	200	500	1,400	1,800
Women	(2)	300	(2)	200	(2)	(2)	(2)	100
Materials science	4,800	7,300	2,100	3,300	300	600	1,200	2,000
Men	4,700	7,000	2,000	3,200	300	600	1,200	1,900
Women	(2)	200	(2)	100	(2)	(2)	(2)	100
Mechanical	4,000	6,600	1,500	2,500	100	400	800	800
Men	4,000	6,500	1,500	2,500	100	400	800	800
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)
Nuclear	1,700	2,400	600	1,100	(2)	(2)	300	600
Men	1,700	2,300	500	1,100	(2)	(2)	300	600
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	2,400	3,700	1,000	1,900	(2)	100	400	600
Men	2,400	3,500	1,000	1,800	(2)	100	400	600
Women	(2)	200	(2)	100	(2)	(2)	(2)	(2)
Other engineers	9,800	14,300	3,900	5,400	500	900	2,100	2,600
Men	9,800	14,000	3,800	5,200	500	900	2,100	2,500
Women	100	400	(2)	200	(2)	100	(2)	100

Table 14 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration				Teaching	
	Development		Of R & D		Other than R & D		1975	1985
	1975	1985	1975	1985	1975	1985		
Total, all fields	11,300	22,000	28,700	34,900	23,100	34,700	91,100	111,700
Men	11,100	20,600	27,800	32,800	21,500	29,700	81,700	94,100
Women	200	1,400	900	2,100	1,500	5,000	9,400	17,600
Total scientists	4,500	11,200	20,700	24,000	18,400	29,200	81,800	99,200
Men	4,300	10,000	19,800	22,100	16,900	24,300	72,400	81,900
Women	200	1,200	900	1,900	1,500	4,900	9,400	17,400
Physical scientists	2,100	3,600	8,500	9,400	3,700	3,600	15,500	15,200
Men	2,100	3,500	8,400	9,100	3,600	3,400	14,500	13,900
Women	100	200	100	300	100	200	1,100	1,300
Chemists	1,500	2,600	6,700	6,800	2,700	2,200	9,400	9,100
Men	1,400	2,400	6,600	6,600	2,600	2,100	8,500	8,000
Women	(2)	200	100	300	100	200	800	1,100
Physicists/astronomers	700	1,100	1,800	2,500	1,000	1,400	6,100	6,000
Men	700	1,100	1,800	2,500	1,000	1,400	5,900	5,800
Women	(2)	(2)	(2)	100	(2)	(2)	200	200
Mathematical scientists	300	600	400	400	800	1,300	9,100	9,400
Men	300	500	400	300	800	1,300	8,400	8,500
Women	(2)	100	(2)	(2)	(2)	100	700	1,000
Mathematicans	300	400	300	300	700	1,200	8,100	8,200
Men	300	300	300	200	700	1,200	7,400	7,300
Women	(2)	(2)	(2)	(2)	(2)	100	700	900
Statisticians	(2)	200	100	100	100	100	1,000	1,300
Men	(2)	200	100	100	100	100	900	1,200
Women	(2)	(2)	(2)	(2)	(2)	(2)	100	100
Computer specialists	800	4,100	400	1,700	400	1,100	1,100	2,800
Men	800	3,700	400	1,600	400	1,000	1,000	2,600
Women	(2)	400	(2)	200	(2)	100	(2)	200

Table 14 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration				Teaching	
	Development		Of R & D		Other than R & D		1975	1985
	1975	1985	1975	1985	1975	1985		
Environmental scientists	200	300	1,500	2,100	1,300	1,400	3,500	3,400
Men	200	300	1,500	2,000	1,300	1,300	3,400	3,200
Women	(2)	(2)	(2)	100	(2)	100	100	200
Earth scientists	100	200	1,100	1,500	1,200	1,100	3,100	3,000
Men	100	200	1,100	1,400	1,200	1,100	3,000	2,800
Women	(2)	(2)	(2)	100	(2)	100	100	200
Oceanographers	(2)	(2)	200	200	100	100	300	200
Men	(2)	(2)	200	200	100	100	300	200
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	100	100	200	300	(2)	100	200	200
Men	100	100	200	300	(2)	100	100	200
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Life scientists	600	1,700	6,200	7,300	4,400	8,300	19,900	22,400
Men	600	1,500	5,900	6,700	4,100	6,700	17,300	17,400
Women	(2)	300	300	700	400	1,600	2,600	5,000
Biological scientists	200	700	2,600	3,800	2,100	3,500	14,800	15,500
Men	200	500	2,400	3,400	1,900	2,900	12,600	12,200
Women	(2)	100	200	300	200	600	2,200	3,300
Agricultural scientists	200	400	1,600	1,600	800	1,400	2,000	2,300
Men	200	300	1,600	1,600	800	1,400	2,000	2,200
Women	(2)	(2)	(2)	100	(2)	100	(2)	100
Medical scientists	200	700	2,000	2,000	1,500	3,400	3,100	4,600
Men	200	600	1,800	1,700	1,300	2,400	2,700	3,000
Women	(2)	100	100	300	200	1,000	400	1,600
Psychologists	200	400	1,800	1,000	3,700	5,200	11,300	13,200
Men	200	300	1,600	700	3,000	3,700	9,100	9,400
Women	(2)	100	200	300	700	1,400	2,200	3,800

Table 14 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration				Teaching	
	Development		Of R & D		Other than R & D		1975	1985
	1975	1985	1975	1985	1975	1985		
Social scientists	200	400	1,900	2,100	4,000	8,300	21,400	32,800
Men	200	300	1,700	1,700	3,800	6,800	18,800	26,900
Women	(2)	100	200	400	300	1,400	2,600	5,900
Economists	(2)	(2)	900	500	1,500	2,100	5,600	7,800
Men	(2)	(2)	900	500	1,400	2,000	5,300	7,200
Women	(2)	(2)	(2)	(2)	(2)	100	300	700
Sociologists/anthropologists	(2)	(2)	300	200	500	1,200	5,500	7,900
Men	(2)	(2)	200	100	400	800	4,300	5,600
Women	(2)	(2)	100	100	100	300	1,200	2,300
Other social scientists	100	300	700	1,300	2,100	5,000	10,300	17,100
Men	100	300	600	1,100	1,900	4,000	9,200	14,100
Women	(2)	100	100	300	200	1,000	1,100	2,900
Total engineers	6,800	10,800	8,000	10,900	4,700	5,500	9,300	12,500
Men	6,800	10,500	7,900	10,800	4,600	5,400	9,300	12,200
Women	(2)	300	(2)	200	(2)	100	(2)	300
Aeronautical/astronautical	300	800	500	900	200	200	300	300
Men	300	800	500	900	200	200	300	300
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Chemical	1,000	1,200	1,000	1,200	900	500	800	900
Men	1,000	1,100	1,000	1,200	900	500	800	900
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Civil	300	500	400	500	600	700	1,400	2,200
Men	300	500	400	500	600	700	1,400	2,200
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)

Table 14 cont.

Field and sex	Primary work activity							
	Research and development		Management/administration				Teaching	
	Development		Of R & D		Other than R & D		1975	1985
	1975	1985	1975	1985	1975	1985		
Electrical/electronics	2,000	2,900	1,600	2,900	700	1,300	2,200	3,000
Men	2,000	2,900	1,500	2,900	700	1,300	2,200	3,000
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	100
Materials science	500	600	1,200	1,500	300	400	800	800
Men	500	600	1,200	1,500	300	400	800	800
Women	(2)	(2)	(2)	100	(2)	(2)	(2)	(2)
Mechanical	600	1,300	600	900	400	500	1,300	2,000
Men	600	1,300	600	900	400	500	1,300	2,000
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Nuclear	300	500	400	300	200	300	300	100
Men	300	500	400	300	200	300	300	100
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	600	1,100	400	600	300	200	400	400
Men	600	1,000	400	600	200	200	400	400
Women	(2)	100	(2)	(2)	(2)	(2)	(2)	(2)
Other engineers	1,300	1,800	1,900	2,100	1,200	1,400	1,900	2,600
Men	1,300	1,800	1,900	2,100	1,200	1,400	1,900	2,600
Women	(2)	(2)	(2)	(2)	(2)	(2)	(2)	100

Table 14 cont.

Field and sex	Primary work activity					
	Consulting		Sales/ professional services		Other (1)	
	1975	1985	1975	1985	1975	1985
Total, all fields	5,500	14,200	11,700	36,500	13,600	35,800
Men	5,100	12,700	9,300	26,700	12,100	29,700
Women	400	1,400	2,400	9,800	1,400	6,100
Total scientists	3,800	10,500	11,300	34,300	11,600	30,600
Men	3,400	9,100	8,900	24,500	10,200	24,700
Women	400	1,400	2,400	9,800	1,400	5,900
Physical scientists	400	1,200	1,000	2,000	2,800	6,200
Men	400	1,200	900	1,900	2,600	5,600
Women	(2)	100	100	200	200	600
Chemists	300	900	800	1,600	2,100	4,700
Men	300	800	700	1,400	1,900	4,200
Women	(2)	(2)	(2)	100	200	500
Physicists/astronomers	100	300	200	400	700	1,500
Men	100	300	200	400	700	1,400
Women	(2)	(2)	(2)	(2)	(2)	100
Mathematical scientists	100	500	100	200	400	900
Men	100	400	100	200	400	800
Women	(2)	100	(2)	(2)	(2)	100
Mathematicans	100	200	100	100	300	700
Men	(2)	200	100	100	300	700
Women	(2)	(2)	(2)	(2)	(2)	100
Statisticians	100	200	(2)	100	100	200
Men	100	200	(2)	100	100	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Computer specialists	100	900	100	500	100	1,800
Men	100	800	100	400	100	1,500
Women	(2)	100	(2)	100	(2)	300

Table 14 cont.

Field and sex	Primary work activity					
	Consulting		Sales/ professional services		Other (1)	
	1975	1985	1975	1985	1975	1985
Environmental scientists	500	1,400	100	300	700	1,900
Men	500	1,400	100	300	600	1,700
Women	(2)	100	(2)	(2)	(2)	200
Earth scientists	500	1,300	100	300	600	1,600
Men	400	1,300	100	200	500	1,500
Women	(2)	(2)	(2)	(2)	(2)	100
Oceanographers	(2)	(2)	(2)	(2)	100	200
Men	(2)	(2)	(2)	(2)	100	200
Women	(2)	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	(2)	(2)	(2)	(2)	(2)	100
Men	(2)	(2)	(2)	(2)	(2)	100
Women	(2)	(2)	(2)	(2)	(2)	(2)
Life scientists	900	2,400	2,300	7,300	4,000	9,400
Men	800	2,000	2,000	6,200	3,500	7,400
Women	100	300	200	1,200	500	2,100
Biological scientists	400	1,100	300	1,400	1,900	4,600
Men	300	1,000	300	1,100	1,600	3,500
Women	(2)	200	100	300	300	1,100
Agricultural scientists	300	600	400	700	1,000	1,800
Men	300	600	400	700	1,000	1,600
Women	(2)	(2)	(2)	(2)	(2)	200
Medical scientists	200	600	1,500	5,300	1,100	3,000
Men	200	500	1,400	4,400	900	2,200
Women	(2)	200	200	900	200	800
Psychologists	1,200	2,100	7,400	22,000	1,200	3,500
Men	1,000	1,600	5,400	14,200	900	2,200
Women	200	500	2,000	7,900	300	1,200

Table 14 cont.

Field and sex	Primary work activity					
	Consulting		Sales/ professional services		Other (1)	
	1975	1985	1975	1985	1975	1985
Social scientists	600	2,000	400	1,900	2,500	6,900
Men	600	1,700	400	1,400	2,200	5,500
Women	(2)	200	(2)	500	300	1,400
Economists	300	700	200	700	900	1,600
Men	300	600	100	600	900	1,400
Women	(2)	100	(2)	100	(2)	200
Sociologists/anthropologists	(2)	300	100	400	300	1,100
Men	(2)	300	(2)	300	200	800
Women	(2)	(2)	(2)	200	100	300
Other social scientists	300	900	200	800	1,200	4,100
Men	200	800	200	600	1,100	3,300
Women	(2)	100	(2)	200	200	800
Total engineers	1,700	3,700	400	2,200	2,000	5,300
Men	1,700	3,700	400	2,200	1,900	5,000
Women	(2)	(2)	(2)	(2)	(2)	200
Aeronautical/astronautical	(2)	100	(2)	100	(2)	300
Men	(2)	100	(2)	100	(2)	300
Women	(2)	(2)	(2)	(2)	(2)	(2)
Chemical	200	200	100	400	300	700
Men	200	200	100	400	300	600
Women	(2)	(2)	(2)	(2)	(2)	(2)
Civil	400	800	(2)	300	200	600
Men	400	800	(2)	300	200	500
Women	(2)	(2)	(2)	(2)	(2)	(2)

Table 14 cont.

Field and sex	Primary work activity					
	Consulting		Sales/ professional services		Other (1)	
	1975	1985	1975	1985	1975	1985
Electrical/electronics	100	400	(2)	400	300	900
Men	100	400	(2)	400	300	900
Women	(2)	(2)	(2)	(2)	(2)	(2)
Materials science	100	200	100	300	300	700
Men	100	200	100	300	200	600
Women	(2)	(2)	(2)	(2)	(2)	(2)
Mechanical	100	300	(2)	100	100	200
Men	100	300	(2)	100	100	200
Women	(2)	(2)	(2)	(2)	(2)	(2)
Nuclear	100	300	(2)	(2)	200	300
Men	100	300	(2)	(2)	200	300
Women	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	200	400	(2)	(2)	100	300
Men	200	400	(2)	(2)	100	300
Women	(2)	(2)	(2)	(2)	(2)	(2)
Other engineers	400	1,000	100	500	400	1,400
Men	400	900	100	500	400	1,400
Women	(2)	(2)	(2)	(2)	(2)	100

(1) Includes other and no report
(2) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 15. Recent science and engineering degree recipients by field, degree level, and primary work activity: 1984 (1982 & 1983 graduates)

Field and degree level	Total (1)	Primary work activity						
		Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
	Bachelor's							
Total, all fields	383,100	84,900	5,600	20,600	58,800	66,000	9,600	56,400
Total scientists	266,300	37,900	4,700	14,100	19,100	52,900	6,700	46,200
Physical scientists	14,300	4,700	500	1,800	2,400	1,400	400	1,000
Chemists	8,700	3,100	400	1,300	1,400	700	200	500
Physicists/astronomers	3,900	1,400	100	400	900	500	200	300
Other physical scientists	1,700	300	(3)	100	200	200	(3)	200
Mathematical scientists	15,300	2,700	(3)	600	2,000	1,200	200	1,000
Computer scientists	38,000	8,500	100	700	7,700	2,500	700	1,800
Environmental scientists	9,500	1,600	100	900	600	900	200	700
Life scientists	49,300	10,700	2,400	5,600	2,700	6,800	500	6,300
Biological scientists	30,200	8,100	2,100	4,400	1,600	3,200	100	3,100
Agricultural scientists	19,100	2,600	400	1,200	1,100	3,500	300	3,200
Psychologists	42,000	1,900	400	900	600	12,500	1,400	11,200
Social scientists	97,700	7,900	1,100	3,600	3,100	27,600	3,300	24,300
Economists	29,800	1,000	(3)	500	500	10,300	1,000	9,300
Sociologists/anthropologists	27,200	2,800	300	800	1,700	5,900	600	5,300
Other social scientists	40,800	4,100	800	2,300	900	11,400	1,700	9,700
Total engineers	116,900	47,000	800	6,500	39,700	13,200	2,900	10,200
Aeronautical/astronautical	3,500	1,700	(3)	300	1,300	300	100	200
Chemical	9,100	3,700	100	500	3,100	800	200	600
Civil	17,500	4,600	100	600	3,900	2,800	200	2,500
Electrical/electronics	33,300	16,900	200	2,000	14,700	2,600	900	1,700
Industrial	6,700	1,900	(3)	200	1,700	1,100	200	1,000
Materials	2,400	1,000	100	200	700	200	(3)	200
Mechanical	27,600	12,400	200	1,500	10,700	2,800	900	1,900
Mining	2,000	400	100	100	200	300	(3)	200
Nuclear	700	100	(3)	(3)	100	100	(3)	100
Petroleum	2,100	300	(3)	100	200	100	(3)	100
Other engineers	12,100	4,000	100	900	3,100	2,100	300	1,800

Table 15 cont.

Field and degree level	Primary work activity							
	Total (1)	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
	Master's							
Total, all fields	70,400	25,800	2,300	8,500	15,000	12,300	3,500	8,700
Total scientists	48,500	14,100	1,900	6,100	6,100	9,300	2,500	6,800
Physical scientists	3,400	1,800	400	800	600	300	100	200
Chemists	1,400	900	200	300	400	100	(3)	100
Physicists/astronomers	1,100	600	100	300	200	100	(3)	100
Other physical scientists	800	300	100	100	(3)	100	100	(3)
Mathematical scientists	4,800	1,500	200	400	900	800	600	200
Computer scientists	9,300	4,000	100	500	3,400	700	400	400
Environmental scientists	3,100	1,500	200	900	400	200	100	100
Life scientists	9,800	3,600	1,100	2,100	500	1,100	300	800
Biological scientists	5,600	2,200	900	1,100	200	500	200	300
Agricultural scientists	4,200	1,400	200	1,000	200	600	100	500
Psychologists	4,900	200	100	100	100	1,300	300	1,000
Social scientists	13,200	1,600	(3)	1,400	200	4,900	700	4,200
Economists	2,700	500	(3)	400	100	400	(3)	300
Sociologists/anthropologists	1,800	(3)	(3)	(3)	(3)	700	(3)	600
Other social scientists	8,600	1,100	(3)	1,000	100	3,900	600	3,200
Total engineers	21,800	11,700	400	2,400	8,900	2,900	1,100	1,900
Aeronautical/astronautical	600	400	(3)	100	300	(3)	(3)	(3)
Chemical	1,600	1,000	(3)	300	700	200	100	100
Civil	3,000	900	(3)	200	700	600	(3)	500
Electrical/electronics	6,700	5,000	100	800	4,000	600	300	300
Industrial	1,000	300	(3)	100	300	100	(3)	100
Materials	600	400	100	100	200	(3)	(3)	(3)
Mechanical	3,500	2,100	100	400	1,700	400	200	200
Mining	300	100	(3)	(3)	(3)	(3)	(3)	(3)
Nuclear	300	100	(3)	(3)	100	(3)	(3)	(3)
Petroleum	300	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Other engineers	4,100	1,300	100	300	1,000	900	300	600

Table 15 cont.

Field and degree level	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
	Bachelor's			
Total, all fields	26,800	76,400	58,900	68,100
Total scientists	25,500	46,500	48,400	55,100
Physical scientists	1,300	3,700	900	2,200
Chemists	500	2,500	400	1,400
Physicists/astronomers	400	900	400	300
Other physical scientists	300	400	100	500
Mathematical scientists	1,900	1,500	6,200	1,900
Computer scientists	1,200	2,400	20,400	3,100
Environmental scientists	600	3,700	1,200	1,600
Life scientists	4,000	13,900	2,300	11,600
Biological scientists	2,800	7,400	1,600	7,000
Agricultural scientists	1,200	6,500	700	4,500
Psychologists	7,300	4,800	2,700	12,400
Social scientists	9,200	14,700	14,700	22,400
Economists	600	3,700	6,000	7,600
Sociologists/anthropologists	5,300	6,000	1,700	5,300
Other social scientists	3,300	5,000	7,000	9,500
Total engineers	1,400	32,000	10,400	13,000
Aeronautical/astronautical	100	700	400	300
Chemical	100	2,700	500	1,300
Civil	200	5,500	1,900	2,500
Electrical/electronics	400	7,900	3,300	2,300
Industrial	100	1,600	800	1,100
Materials	(3)	1,000	(3)	100
Mechanical	200	7,100	1,800	3,000
Mining	(3)	900	200	200
Nuclear	(3)	200	200	100
Petroleum	(3)	1,300	100	300
Other engineers	200	2,900	1,200	1,600

Table 15 cont.

Field and degree level	Primary work activity			
	Teaching	Production/ inspection	Reporting, stat work, computing	Other (2)
	Master's			
Total, all fields	6,700	7,400	9,000	9,100
Total scientists	6,000	4,700	7,300	7,100
Physical scientists	400	400	300	200
Chemists	100	300	100	100
Physicists/astronomers	100	100	100	100
Other physical scientists	200	100	100	(3)
Mathematical scientists	1,100	200	1,000	300
Computer scientists	800	300	2,900	500
Environmental scientists	200	800	200	200
Life scientists	1,000	1,300	600	2,100
Biological scientists	700	600	400	1,200
Agricultural scientists	300	700	300	900
Psychologists	900	100	300	2,100
Social scientists	1,600	1,400	2,000	1,700
Economists	400	100	800	500
Sociologists/anthropologists	400	200	300	200
Other social scientists	700	1,100	800	1,000
Total engineers	700	2,700	1,700	2,100
Aeronautical/astronautical	100	100	(3)	(3)
Chemical	(3)	300	100	100
Civil	100	500	100	800
Electrical/electronics	100	400	300	100
Industrial	(3)	200	300	100
Materials	(3)	100	(3)	(3)
Mechanical	200	300	200	200
Mining	(3)	(3)	(3)	100
Nuclear	(3)	100	(3)	(3)
Petroleum	(3)	100	100	(3)
Other engineers	200	600	500	600

(1) Exclusive of full-time graduate students
(2) Includes other government, military, other, and no report
(3) Too few cases to estimate
NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 15a. Recent doctoral science and engineering degree recipients by field and primary work activity: 1985 (1983 and 1984 graduates)

Field	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Total, all fields	34,400	16,400	8,900	5,700	1,800	2,100	900	1,200
Total scientists	29,700	13,700	8,100	4,500	1,000	1,700	500	1,200
Physical scientists	4,900	3,800	2,300	1,300	200	100	100	(2)
Chemists	3,200	2,400	1,400	900	100	100	100	(2)
Physicists/astronomers	1,700	1,400	800	500	100	(2)	(2)	(2)
Mathematical scientists	1,100	400	200	200	(2)	(2)	(2)	(2)
Mathematicans	900	400	200	100	(2)	(2)	(2)	(2)
Statisticians	200	100	(2)	(2)	(2)	(2)	(2)	(2)
Computer specialists	1,300	700	200	200	400	100	100	100
Environmental scientists	1,300	800	500	200	100	100	100	(2)
Earth scientists	900	500	300	200	100	100	100	(2)
Oceanographers	200	100	100	(2)	(2)	(2)	(2)	(2)
Atmospheric scientists	200	100	100	(2)	(2)	(2)	(2)	(2)
Life scientists	9,300	5,900	4,300	1,400	100	500	200	400
Biological scientists	5,700	4,200	3,600	600	100	100	100	100
Agricultural scientists	1,300	800	300	600	(2)	100	(2)	100
Medical scientists	2,300	800	500	200	100	300	100	200
Psychologists	5,800	800	300	400	100	400	100	400
Social scientists	5,900	1,300	400	900	100	400	100	300
Economists	1,600	600	100	500	(2)	(2)	(2)	(2)
Sociologists/anthropologists	1,000	200	100	100	(2)	(2)	(2)	(2)
Other social scientists	3,300	600	200	300	(2)	300	100	300

Table 15a cont.

Field	Primary work activity							
	Total	Research and development				Management/administration		
		Total	Basic research	Applied research	Development	Total	Of R & D	Other than R & D
Total engineers	4,700	2,700	800	1,100	800	400	300	(2)
Aeronautical/astronautical	300	200	100	(2)	100	(2)	(2)	(2)
Chemical	400	200	(2)	100	(2)	(2)	(2)	(2)
Civil	800	400	200	(2)	200	100	100	(2)
Electrical/electronics	1,100	600	200	100	300	100	100	(2)
Materials science	500	400	100	400	(2)	(2)	(2)	(2)
Mechanical	400	200	100	100	(2)	(2)	(2)	(2)
Nuclear	100	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Systems design	100	100	(2)	(2)	(2)	(2)	(2)	(2)
Other engineers	900	500	100	300	100	100	100	(2)

Table 15a cont.

Field	Primary work activity			
	Teaching	Consulting	Sales/ professional services	Other (1)
Total, all fields	7,600	900	3,900	3,600
Total scientists	6,600	700	3,800	3,300
Physical scientists	500	(2)	(2)	600
Chemists	300	(2)	(2)	400
Physicists/astronomers	200	(2)	(2)	100
Mathematical scientists	600	(2)	(2)	100
Mathematicans	500	(2)	(2)	100
Statisticians	100	(2)	(2)	(2)
Computer specialists	100	(2)	(2)	300
Environmental scientists	300	100	(2)	100
Earth scientists	200	100	(2)	100
Oceanographers	(2)	(2)	(2)	(2)
Atmospheric scientists	(2)	(2)	(2)	(2)
Life scientists	1,400	200	500	900
Biological scientists	800	(2)	100	400
Agricultural scientists	100	100	100	100
Medical scientists	500	100	400	300
Psychologists	900	300	3,100	400
Social scientists	2,900	200	100	900
Economists	800	(2)	(2)	100
Sociologists/anthropologists	600	(2)	(2)	200
Other social scientists	1,500	100	100	600

Table 15a cont.

Field	Primary work activity			
	Teaching	Consulting	Sales/ professional services	Other (1)
Total engineers	1,000	200	100	300
Aeronautical/astronautical	(2)	(2)	(2)	(2)
Chemical	100	(2)	(2)	100
Civil	300	(2)	(2)	100
Electrical/electronics	300	(2)	(2)	100
Materials science	(2)	(2)	(2)	(2)
Mechanical	200	(2)	(2)	(2)
Nuclear	(2)	(2)	(2)	(2)
Systems design	(2)	(2)	(2)	(2)
Other engineers	200	100	(2)	100

(1) Includes other and no report
(2) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 16. Employed scientists and engineers by field and age: 1986p

Field	Age											
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Total, all fields	4,615,700	192,800	405,000	566,700	696,400	606,100	491,000	463,300	408,800	274,000	77,000	33,900	400,700
Total scientists	2,055,100	120,100	198,000	273,500	330,700	282,500	187,800	163,900	140,700	73,200	26,900	12,700	245,200
Physical scientists	293,800	9,300	20,000	27,700	41,900	42,900	37,200	34,800	33,100	20,900	5,900	2,200	17,900
Chemists	195,200	6,700	13,800	19,600	26,900	29,100	21,900	22,800	23,100	14,700	4,400	1,300	10,900
Physicists/astronomers	70,800	1,200	4,500	5,600	10,000	9,700	11,700	10,800	6,800	4,900	1,500	400	3,700
Other physical scientists	27,800	1,500	1,700	2,500	5,000	4,100	3,500	1,300	3,200	1,300	100	400	3,300
Mathematical scientists	116,400	1,700	8,300	12,000	21,700	24,800	11,400	13,300	8,300	3,800	1,500	100	9,500
Mathematicians	97,200	1,100	5,400	9,800	16,400	21,900	10,500	11,600	7,600	3,100	1,300	(1)	8,500
Statisticians	19,200	600	2,900	2,200	5,300	2,900	900	1,700	700	700	200	100	1,000
Computer specialists	505,200	28,900	65,000	91,700	104,000	73,000	36,700	21,700	11,700	4,400	1,200	300	66,600
Environmental scientists	112,500	4,600	12,000	17,700	14,300	12,400	8,800	11,800	10,000	6,800	1,800	1,400	10,900
Earth scientists	94,300	3,500	10,300	15,000	10,700	9,100	7,400	10,700	9,400	5,600	1,500	1,400	9,800
Oceanographers	3,700	100	200	500	900	1,100	300	100	100	100	(1)	(1)	200
Atmospheric scientists	14,400	1,000	1,500	2,200	2,700	2,100	1,100	1,100	500	1,100	200	(1)	900
Life scientists	405,900	27,800	43,300	47,800	52,200	48,400	38,500	35,600	33,600	18,700	8,000	3,000	49,100
Biological scientists	272,000	18,000	28,700	36,300	40,800	36,100	25,600	20,300	20,000	9,400	4,700	1,000	31,300
Agricultural scientists	101,900	9,800	14,200	9,200	7,700	8,200	7,400	10,900	8,900	5,800	900	1,100	17,800
Medical scientists	32,000	(1)	500	2,300	3,700	4,000	5,500	4,400	4,700	3,500	2,500	900	(1)
Psychologists	239,700	13,900	15,300	33,500	38,900	35,300	25,200	21,300	19,400	8,100	2,900	1,100	24,800
Social scientists	381,700	33,900	34,000	43,000	57,700	45,800	30,000	25,400	24,700	10,500	5,700	4,600	66,400
Economists	145,500	12,800	13,800	15,400	23,000	14,900	12,500	11,000	9,300	5,600	2,600	1,800	22,800
Sociologists/ anthropologists	90,400	9,800	8,600	11,800	12,800	12,700	7,400	3,800	5,300	1,400	1,500	900	14,400
Other social scientists	145,800	11,300	11,700	15,800	21,800	18,200	10,100	10,700	10,000	3,400	1,500	2,000	29,300

Table 16 cont.

Field	Age											
	Total	24 and under	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70 and over	No report
Total engineers	2,560,600	72,700	207,000	293,200	365,700	323,600	303,300	299,400	268,100	200,800	50,100	21,200	155,600
Aeronautical/astronautical	111,600	1,800	7,000	5,500	10,500	13,700	16,600	18,700	17,000	13,700	1,900	500	4,900
Chemical	163,100	7,800	15,800	20,500	21,800	15,900	17,400	17,700	17,200	13,600	4,300	1,400	9,600
Civil	365,700	10,000	29,300	41,900	49,700	46,000	44,000	42,800	37,000	26,800	9,600	5,200	23,400
Electrical/electronics	581,300	18,500	49,800	67,200	79,300	80,300	67,800	67,000	60,600	39,000	6,500	3,700	41,500
Industrial	150,900	2,700	12,000	15,700	28,700	18,900	19,000	17,800	12,600	12,200	2,800	300	8,400
Materials	59,300	1,800	4,800	6,400	10,000	6,600	7,500	6,000	5,300	5,600	1,400	200	3,800
Mechanical	513,700	15,100	37,300	52,400	68,900	63,900	62,300	57,600	60,000	49,300	12,900	3,800	30,100
Mining	19,000	900	2,800	3,300	3,000	900	500	1,600	2,200	1,700	300	100	1,800
Nuclear	25,300	1,500	2,300	3,300	4,600	3,700	2,200	2,700	1,200	1,300	(1)	100	2,500
Petroleum	38,400	2,700	5,600	4,300	3,300	2,800	3,000	3,900	3,900	3,100	900	400	4,500
Other engineers	532,100	10,100	40,300	72,600	85,800	70,800	63,000	63,600	51,200	34,600	9,600	5,600	25,100

p = estimates for 1986 are preliminary data

(1) Too few cases to estimate

NOTE: Detail may not add to total because of rounding
SOURCE: National Science Foundation

Table 17. Employed scientists and engineers by field and doctoral intensity rate: 1986p

Field	Percent
Total, all fields	8.7%
Total scientists	16.3%
Physical scientists	23.0%
Chemists	22.4%
Physicists/astronomers	33.5%
Mathematical scientists	14.4%
Mathematicians	14.4%
Statisticians	14.6%
Computer specialists	3.0%
Environmental scientists	15.4%
Earth scientists	14.0%
Oceanographers	52.9%
Atmosperhic scientists	14.8%
Life scientists	25.1%
Biological scientists	22.0%
Agricultural scientists	15.2%
Medical scientists	82.7%
Psychologists	21.8%
Social scientists	16.8%
Economists	12.3%
Sociologists/anthropologists	14.0%
Other social scientists	22.9%
Total engineers	2.6%
Aeronautical/astronautical	3.4%
Chemical	4.4%
Civil	1.7%
Electrical/electronics	2.5%
Materials	12.2%
Mechanical	1.3%
Nuclear	9.4%
Other engineers	2.4%

NOTE: Doctoral intensity is defined as employed doctoral scientists and engineers as a percent of all employed scientists and engineers.

p = estimates for 1986 are preliminary data

SOURCE: National Science Foundation

Table 18. Selected market characteristics of scientists and engineers by field, sex, and racial/ethnic group: 1986p

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total, all fields (1)	95.6	95.9	94.3	1.6	1.4	3.4	86.7	88.1	77.0	2.6	1.8	7.8	4.2	3.2	11.0
White	95.5	95.7	94.1	1.5	1.2	3.4	86.8	88.1	77.0	2.5	1.8	7.4	3.9	3.0	10.5
Black	98.2	98.7	96.8	2.6	2.0	4.7	81.7	84.7	71.0	6.3	3.5	15.7	8.7	5.4	19.7
Asian	96.6	97.1	93.2	2.4	2.5	1.6	90.9	92.1	83.1	1.8	1.5	3.6	4.1	3.9	5.1
Native American	97.7	97.8	96.1	3.4	1.9	18.0	78.2	78.8	71.3	3.0	1.5	20.0	6.3	3.4	34.4
Hispanic (2)	96.0	96.2	95.2	2.2	2.1	2.4	80.2	81.9	72.5	4.7	2.8	13.4	6.8	4.9	15.5
Total scientists	96.0	96.6	94.2	2.1	1.6	3.5	78.7	80.2	74.1	4.5	3.1	8.9	6.5	4.7	12.1
White	96.0	96.6	94.1	2.0	1.5	3.5	78.9	80.4	74.3	4.3	3.0	8.3	6.2	4.5	11.5
Black	97.8	98.4	96.7	2.8	2.1	4.3	73.4	75.6	69.0	8.9	4.8	16.9	11.4	6.8	20.5
Asian	95.8	97.0	92.8	2.2	2.5	1.4	83.3	85.2	78.6	3.2	2.7	4.4	5.3	5.1	5.8
Native American	97.6	97.1	100.0	3.6	(3)	19.3	63.5	63.1	65.9	6.4	3.2	23.9	9.7	3.2	38.6
Hispanic (2)	93.1	92.3	94.8	2.0	1.8	2.3	67.6	67.2	68.3	8.8	5.4	15.7	10.6	7.0	17.7
Physical scientists	94.6	94.9	92.0	1.9	1.6	3.7	92.1	92.1	91.7	2.2	2.1	3.2	4.0	3.6	6.8
White	94.6	94.8	92.9	1.6	1.4	3.9	92.4	92.3	92.6	1.9	1.8	2.5	3.5	3.1	6.3
Black	98.1	98.8	94.6	5.6	5.5	6.1	78.9	77.9	83.7	3.2	1.8	10.3	8.6	7.2	15.7
Asian	92.6	94.9	84.8	2.3	2.6	1.3	92.6	93.3	89.7	5.5	6.2	3.2	7.7	8.6	4.4
Native American	84.6	84.1	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	91.9	93.2	86.5	4.4	4.7	3.3	90.9	89.3	98.4	3.6	2.9	6.5	7.8	7.4	9.6
Chemists	94.0	94.3	92.1	1.7	1.4	3.6	91.3	91.2	91.9	1.8	1.5	3.6	3.5	2.9	7.1
White	94.1	94.2	92.9	1.4	1.1	3.8	91.8	91.7	92.9	1.7	1.6	2.9	3.1	2.7	6.5
Black	98.8	99.8	94.6	6.4	6.4	6.5	77.9	76.1	86.2	2.9	2.0	7.3	9.1	8.2	13.3
Asian	91.0	92.9	86.5	2.6	3.1	1.4	91.4	91.7	90.5	1.0	(3)	3.5	3.6	3.1	4.8
Native American	82.2	81.5	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	94.7	97.9	83.7	.8	(3)	3.9	87.8	85.4	98.0	4.8	3.9	8.2	5.5	3.9	11.8
Physicists/astronomers	95.8	96.3	86.6	1.3	1.1	4.8	95.2	95.3	94.6	2.5	2.6	1.3	3.8	3.7	6.0
White	95.6	96.0	88.6	.9	.7	5.4	95.4	95.4	95.8	1.2	1.3	(3)	2.1	1.9	5.4
Black	99.2	100.0	92.9	(3)	(3)	(3)	80.6	85.2	43.6	7.4	1.3	56.4	7.4	1.3	56.4
Asian	95.1	97.9	64.6	2.4	2.6	(3)	94.5	94.5	95.1	21.0	22.4	(3)	23.0	24.4	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	82.1	80.1	100.0	17.4	19.8	(3)	100.0	100.0	100.0	(3)	(3)	(3)	17.4	19.8	(3)
Other physical scientists	95.5	95.4	96.6	4.4	4.6	3.4	89.2	89.4	87.2	3.9	4.1	2.2	8.1	8.5	5.5
White	95.5	95.3	97.0	4.8	5.0	3.4	88.5	88.6	88.3	4.2	4.5	2.2	8.7	9.2	5.6
Black	81.8	81.3	100.0	(3)	(3)	(3)	95.6	95.5	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	99.7	100.0	94.9	(3)	(3)	(3)	96.8	100.0	34.7	(3)	(3)	(3)	(3)	(3)	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	.6	(3)	3.7	100.0	100.0	100.0	(3)	(3)	(3)	.6	(3)	3.7

Table 18 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Mathematical scientists	95.5	96.2	92.7	2.2	2.1	2.8	86.8	87.2	85.7	2.9	1.9	6.5	5.1	4.0	9.1
White	95.3	96.2	92.3	1.7	1.4	2.6	85.8	86.0	85.3	2.8	1.9	6.0	4.4	3.3	8.4
Black	98.2	98.0	98.6	2.3	(3)	6.7	91.9	89.5	96.8	3.7	4.9	1.1	5.9	4.9	7.7
Asian	95.5	95.9	91.9	9.5	10.6	(3)	95.3	95.8	91.1	1.9	1.4	6.0	11.3	11.9	6.0
Native American	100.0	100.0	100.0	(3)	(3)	(3)	91.2	100.0	19.5	8.8	(3)	80.5	8.8	(3)	80.5
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	95.3	97.3	89.2	2.7	(3)	10.8	2.7	(3)	10.8
Mathematicians	95.0	95.8	91.9	2.3	2.2	2.5	86.0	86.6	83.7	3.2	2.1	7.5	5.4	4.2	9.8
White	94.7	95.7	91.4	1.6	1.4	2.1	84.7	85.2	83.0	3.1	2.0	7.3	4.6	3.4	9.2
Black	98.8	98.9	98.4	2.5	(3)	7.5	91.1	88.7	96.3	4.0	5.3	1.2	6.4	5.3	8.7
Asian	94.5	95.1	88.2	11.6	12.7	(3)	96.5	97.5	86.5	2.4	1.7	9.1	13.7	14.2	9.1
Native American	100.0	100.0	100.0	(3)	(3)	(3)	83.3	100.0	19.5	16.7	(3)	80.5	16.7	(3)	80.5
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	98.0	98.7	95.3	1.0	(3)	4.7	1.0	(3)	4.7
Statisticians	98.2	98.6	96.8	2.1	1.5	4.1	91.0	90.0	94.4	1.5	1.3	2.0	3.5	2.7	6.0
White	98.1	98.7	96.4	2.4	1.7	4.6	91.3	89.9	95.8	1.1	1.5	(3)	3.5	3.1	4.6
Black	92.8	87.9	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	90.4	88.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	75.7	81.1	70.7	15.1	(3)	29.3	15.1	(3)	29.3
Computer specialists	98.7	99.3	97.3	.6	.5	.8	77.9	77.9	77.8	2.2	2.2	2.4	2.8	2.6	3.2
White	99.0	99.6	97.3	.5	.4	.8	77.7	77.8	77.3	2.0	2.1	1.7	2.5	2.5	2.6
Black	99.5	100.0	98.8	1.4	1.2	1.7	81.1	78.9	84.2	5.4	3.6	7.9	6.7	4.8	9.4
Asian	98.4	99.2	96.3	.9	1.0	.5	84.7	86.9	79.2	2.9	1.9	5.4	3.7	2.8	5.9
Native American	100.0	100.0	100.0	(3)	(3)	(3)	24.1	17.6	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	90.3	87.7	94.8	(3)	(3)	(3)	67.3	64.0	72.6	4.9	4.7	5.3	4.9	4.7	5.3
Environmental scientists	95.9	96.3	92.7	3.1	2.6	7.1	91.7	92.1	88.2	3.9	3.2	10.0	6.8	5.7	16.3
White	95.9	96.3	92.4	3.1	2.6	7.4	91.4	91.8	87.7	3.8	3.1	10.5	6.8	5.6	17.1
Black	85.6	82.8	100.0	2.3	1.0	8.0	98.6	98.3	100.0	1.4	1.7	(3)	3.7	2.7	8.0
Asian	98.9	98.8	100.0	(3)	(3)	(3)	97.4	98.3	81.3	3.4	3.6	(3)	3.4	3.6	(3)
Native American	94.2	93.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	97.0	96.7	100.0	3.8	4.2	(3)	96.2	96.6	92.6	2.4	1.5	8.8	6.0	5.7	8.8
Earth scientists	95.7	96.2	92.0	3.1	2.6	6.6	91.1	91.6	87.2	4.3	3.5	11.3	7.2	6.0	17.2
White	95.6	96.1	91.7	3.0	2.6	6.8	90.9	91.4	86.9	4.3	3.4	11.8	7.2	5.9	17.8
Black	94.0	93.0	100.0	3.0	1.3	12.0	98.2	97.9	100.0	1.8	2.1	(3)	4.7	3.4	12.0
Asian	98.5	98.4	100.0	(3)	(3)	(3)	96.8	98.0	69.1	3.7	3.9	(3)	3.7	3.9	(3)
Native American	93.0	91.2	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.4	99.3	100.0	4.5	5.0	(3)	95.4	96.0	91.4	2.8	1.8	10.5	7.2	6.8	10.5

Table 18 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Oceanographers	95.4	95.2	96.3	9.4	7.2	19.6	96.4	96.5	96.2	2.1	2.2	1.2	11.2	9.2	20.5
White	97.6	97.4	98.3	10.1	7.8	20.0	96.3	96.4	96.1	2.0	2.1	1.2	11.9	9.8	21.0
Black	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	92.6	92.3	100.0	11.1	11.5	(3)	11.1	11.5	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	98.3	100.0	80.0	1.7	(3)	20.0	1.7	(3)	20.0
Atmospheric scientists	97.3	97.3	97.1	1.4	1.2	3.3	93.7	93.8	92.6	1.5	1.4	2.7	2.8	2.6	5.9
White	97.2	97.2	96.7	1.5	1.3	3.8	93.5	93.7	91.4	1.3	1.1	3.1	2.7	2.4	6.8
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	1.5	1.6	(3)	1.5	1.6	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	84.4	82.3	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Life scientists	94.1	95.2	91.0	2.2	1.5	4.4	83.2	83.5	82.3	5.0	3.7	9.1	7.0	5.1	13.1
White	94.1	95.2	90.6	2.1	1.5	4.3	83.1	83.2	82.7	4.8	3.7	8.9	6.8	5.1	12.8
Black	95.3	97.2	90.9	1.0	1.2	.6	81.2	78.7	87.4	5.4	3.7	9.4	6.3	4.8	9.9
Asian	92.7	93.2	91.9	3.6	3.0	4.5	90.0	94.4	83.0	5.2	2.6	9.3	8.6	5.5	13.5
Native American	100.0	100.0	100.0	(3)	(3)	(3)	61.4	76.2	11.6	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	93.0	93.0	93.0	1.4	1.9	.7	79.0	79.5	78.2	10.4	5.7	17.5	11.7	7.5	18.0
Biological scientists	94.2	95.2	91.4	1.9	1.1	4.3	84.2	85.2	81.4	5.4	4.0	9.4	7.2	5.0	13.3
White	94.2	95.3	91.0	1.8	1.1	4.0	84.2	84.8	82.2	5.2	4.0	9.2	6.9	5.0	12.8
Black	95.2	97.8	89.3	(3)	(3)	(3)	81.4	79.0	87.2	3.7	1.6	9.0	3.7	1.6	9.0
Asian	92.1	92.1	92.2	3.8	2.2	6.0	90.9	96.3	82.7	4.6	2.1	8.4	8.2	4.3	13.9
Native American	100.0	100.0	100.0	(3)	(3)	(3)	50.3	92.8	11.6	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	93.8	93.2	94.6	1.0	1.8	(3)	78.2	79.2	77.1	10.2	3.9	17.7	11.1	5.6	17.7
Agricultural scientists	95.0	95.5	92.6	3.0	2.4	5.6	77.8	76.9	81.6	5.2	4.0	10.8	8.1	6.3	15.8
White	94.9	95.5	92.4	3.0	2.3	6.1	77.5	76.7	81.3	5.1	4.0	10.3	8.0	6.2	15.8
Black	94.2	92.0	100.0	8.0	9.3	4.8	76.7	73.4	84.5	15.2	15.1	15.5	22.0	23.0	19.5
Asian	95.4	94.3	98.3	4.0	5.7	(3)	85.3	90.4	73.7	11.6	5.8	24.6	15.1	11.2	24.6
Native American	100.0	100.0	(3)	(3)	(3)	(3)	67.4	67.4	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	87.3	90.1	77.5	2.4	3.0	(3)	86.5	86.2	87.8	14.2	13.4	17.5	16.3	16.1	17.5
Medical scientists	91.0	93.5	82.4	1.8	1.7	2.3	92.3	92.0	93.2	.7	.6	1.2	2.5	2.3	3.5
White	90.7	93.2	81.7	1.9	1.7	2.6	92.3	92.1	93.0	.6	.5	1.4	2.5	2.1	4.0
Black	100.0	100.0	100.0	(3)	(3)	(3)	90.5	86.8	100.0	9.5	13.2	(3)	9.5	13.2	(3)
Asian	92.6	100.0	85.0	2.0	3.6	(3)	90.7	88.4	93.5	(3)	(3)	(3)	2.0	3.6	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	5.0	(3)	40.0	66.5	63.7	100.0	(3)	(3)	(3)	5.0	(3)	40.0

Table 18 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Psychologists	96.3	97.0	95.5	2.5	2.1	3.1	72.4	76.5	66.7	7.7	4.5	12.0	10.0	6.5	14.7
White	96.3	97.2	95.2	2.5	2.0	3.2	73.0	76.9	67.4	6.8	4.0	10.7	9.2	6.0	13.6
Black	97.9	96.6	99.0	2.9	3.1	2.8	70.9	86.3	58.3	16.8	4.4	27.0	19.2	7.3	29.1
Asian	94.5	89.4	98.2	1.1	(3)	1.8	72.3	87.1	62.3	2.5	3.6	1.8	3.6	3.6	3.6
Native American	100.0	100.0	100.0	(3)	(3)	(3)	78.5	73.1	100.0	20.0	14.5	42.3	20.0	14.5	42.3
Hispanic (2)	93.6	88.3	100.0	2.3	3.6	1.0	32.1	28.8	35.4	24.0	23.1	25.0	25.8	25.8	25.7
Social scientists	95.6	96.4	93.7	3.5	2.5	6.0	62.3	63.4	59.5	7.7	4.6	15.9	10.9	6.9	20.9
White	95.4	96.2	93.5	3.6	2.7	5.9	63.3	64.5	60.0	7.5	4.6	15.3	10.8	7.1	20.3
Black	97.9	99.1	95.0	3.6	1.7	8.4	56.9	63.6	38.9	13.5	7.6	29.2	16.6	9.2	35.2
Asian	96.5	99.1	92.2	.7	1.1	(3)	61.6	56.9	70.1	.6	.9	(3)	1.3	2.0	(3)
Native American	100.0	100.0	100.0	21.3	(3)	59.3	49.5	38.0	100.0	12.9	2.7	57.8	31.4	2.7	82.8
Hispanic (2)	93.7	93.6	93.9	2.9	.9	7.3	53.8	49.1	64.7	9.1	3.6	22.1	11.7	4.4	27.9
Economists	95.1	95.9	90.9	3.0	2.8	3.6	61.7	60.5	68.4	5.2	4.9	7.5	8.0	7.6	10.9
White	95.2	95.8	91.5	3.1	2.9	4.4	63.0	62.2	68.2	5.1	4.8	7.2	8.1	7.6	11.3
Black	98.4	97.8	100.0	4.3	5.9	(3)	47.5	43.4	57.3	16.9	17.2	16.3	20.4	22.1	16.3
Asian	93.2	98.8	78.4	.5	.6	(3)	52.9	44.7	79.8	.5	.6	(3)	.9	1.2	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	42.9	42.9	(3)	3.6	3.6	(3)	3.6	3.6	(3)
Hispanic (2)	97.9	97.5	100.0	2.6	3.1	(3)	65.3	59.3	100.0	.5	.6	(3)	3.1	3.6	(3)
Sociologists/anthropologists	95.8	97.1	94.0	3.7	2.2	5.8	61.0	66.1	53.5	11.1	4.0	21.4	14.4	6.1	26.0
White	95.6	97.2	93.5	4.2	2.4	6.6	61.8	66.5	55.1	9.9	2.9	20.1	13.7	5.2	25.4
Black	96.6	98.9	92.0	(3)	(3)	(3)	53.2	62.6	33.0	25.5	9.6	59.5	25.5	9.6	59.5
Asian	99.1	100.0	98.2	1.9	3.9	(3)	82.7	97.2	69.0	1.4	2.8	(3)	3.3	6.6	(3)
Native American	100.0	100.0	100.0	(3)	(3)	(3)	46.4	31.2	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	95.5	93.7	100.0	(3)	(3)	(3)	38.7	41.9	31.1	(3)	(3)	(3)	(3)	(3)	(3)
Other social scientists	96.0	96.7	94.8	3.8	2.2	7.1	63.8	65.7	60.1	8.1	4.5	15.4	11.6	6.6	21.4
White	95.6	96.2	94.3	3.7	2.5	5.9	64.4	66.5	60.1	8.5	5.1	15.2	11.8	7.5	20.2
Black	98.4	100.0	94.2	5.5	(3)	20.7	65.4	75.9	28.8	3.0	.9	10.3	8.3	.9	28.9
Asian	99.3	98.9	100.0	(3)	(3)	(3)	55.0	49.7	63.1	(3)	(3)	(3)	(3)	(3)	(3)
Native American	100.0	100.0	100.0	58.5	(3)	65.7	73.5	(3)	100.0	56.0	(3)	76.2	81.8	(3)	91.9
Hispanic (2)	89.2	89.7	88.5	6.4	(3)	14.5	64.3	49.8	85.9	26.1	11.6	47.6	30.8	11.6	55.2
Total engineers	95.4	95.4	94.7	1.3	1.2	2.8	93.1	93.1	94.1	1.0	1.0	1.8	2.3	2.2	4.6
White	95.1	95.1	94.6	1.1	1.0	2.8	93.1	93.0	93.9	1.0	1.0	1.7	2.0	2.0	4.4
Black	98.8	99.0	97.2	2.2	1.8	7.3	93.1	93.8	84.1	2.7	2.3	8.0	4.9	4.1	14.6
Asian	97.1	97.2	94.7	2.5	2.5	2.1	95.3	95.1	98.4	1.0	1.0	1.0	3.4	3.4	3.1
Native American	97.7	98.3	78.2	3.3	3.1	10.3	89.1	88.9	100.0	.4	.4	(3)	3.7	3.5	10.3
Hispanic (2)	98.5	98.6	97.6	2.4	2.3	2.5	90.8	90.6	94.1	1.3	1.3	1.8	3.6	3.6	4.2

Table 18 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Aeronautical/astronautical	95.4	95.5	89.0	0.6	0.6	0.0	94.3	94.2	97.9	0.7	0.7	2.1	1.3	1.3	2.1
White	95.0	95.2	87.8	.6	.6	(3)	95.3	95.2	100.0	.5	.5	(3)	1.2	1.2	(3)
Black	100.0	100.0	100.0	2.8	3.0	(3)	86.9	89.8	52.6	3.7	(3)	47.4	6.4	3.0	47.4
Asian	99.3	99.3	100.0	(3)	(3)	(3)	84.4	84.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	80.6	80.3	100.0	11.8	12.0	(3)	11.8	12.0	(3)
Chemical	91.8	91.9	90.2	2.5	2.3	4.8	90.9	90.7	94.2	1.8	1.7	2.5	4.2	4.0	7.2
White	91.0	91.1	89.5	1.9	1.8	4.4	90.9	90.7	94.5	1.7	1.8	1.7	3.7	3.5	6.1
Black	99.2	100.0	94.5	2.6	2.0	6.2	84.6	89.3	56.2	9.5	3.9	43.8	11.9	5.9	47.3
Asian	97.3	97.6	94.8	5.1	5.1	4.8	96.7	96.6	97.7	.9	1.0	(3)	5.9	6.1	4.8
Native American	90.3	93.5	50.0	4.1	(3)	100.0	10.7	10.7	(3)	6.9	6.9	(3)	10.7	6.9	100.0
Hispanic (2)	99.2	99.7	95.8	11.3	12.4	4.4	95.3	96.5	88.6	2.4	2.0	4.6	13.4	14.2	8.7
Civil	93.7	93.6	96.2	1.7	1.6	4.5	93.6	93.6	91.8	.9	.9	2.6	2.6	2.4	6.9
White	93.3	93.2	95.9	1.5	1.4	3.9	93.9	93.9	90.8	.9	.9	2.5	2.4	2.2	6.3
Black	98.4	98.6	92.0	4.2	2.9	34.4	93.7	93.5	100.0	1.6	.9	27.1	5.7	3.8	52.2
Asian	93.7	93.6	100.0	2.5	2.5	4.1	96.7	96.6	100.0	.7	.7	(3)	3.2	3.2	4.1
Native American	94.3	94.3	(3)	(3)	(3)	(3)	98.3	98.3	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	97.4	97.4	97.4	3.6	3.6	2.4	92.5	92.4	93.5	.4	.4	(3)	4.0	4.0	2.4
Electrical/electronics	95.5	95.6	91.8	.9	.9	1.0	94.9	95.0	91.8	1.0	1.0	.6	1.9	1.9	1.5
White	95.1	95.2	92.1	.8	.8	1.0	94.9	94.9	92.2	1.0	1.0	.2	1.8	1.8	1.3
Black	98.2	98.5	91.9	2.5	2.5	3.2	92.8	94.0	68.6	1.2	1.2	(3)	3.7	3.7	3.2
Asian	97.6	98.1	86.8	1.4	1.4	(3)	94.5	94.5	94.7	.9	.8	3.1	2.2	2.2	3.1
Native American	100.0	100.0	100.0	(3)	(3)	(3)	98.3	98.3	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	97.4	97.6	89.2	1.7	1.8	(3)	91.2	91.3	88.2	.5	.5	(3)	2.2	2.3	(3)
Industrial	97.5	97.6	97.2	1.3	1.1	4.0	85.7	85.4	93.3	1.0	1.0	1.9	2.3	2.1	5.9
White	97.4	97.4	96.4	1.1	1.0	4.1	84.9	84.7	91.4	.9	.9	2.4	2.0	1.9	6.5
Black	100.0	100.0	100.0	1.4	(3)	9.3	96.7	96.3	100.0	2.1	2.4	(3)	3.4	2.4	9.3
Asian	97.7	97.3	100.0	7.4	8.7	(3)	97.9	97.5	100.0	(3)	(3)	(3)	7.4	8.7	(3)
Native American	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	2.6	2.8	(3)	84.6	83.1	100.0	4.8	5.2	(3)	7.2	7.9	(3)
Materials	95.5	95.6	94.0	1.9	1.7	7.4	89.7	89.4	96.9	2.4	2.4	1.7	4.2	4.0	9.0
White	95.5	95.5	95.6	1.8	1.6	5.9	89.7	89.4	97.4	1.7	1.7	2.0	3.5	3.3	7.8
Black	99.6	100.0	95.7	.4	.4	(3)	59.7	55.9	100.0	40.3	44.1	(3)	40.5	44.3	(3)
Asian	94.1	95.1	76.0	2.9	1.6	32.6	94.4	94.2	100.0	1.6	1.7	(3)	4.4	3.2	32.6
Native American	100.0	100.0	100.0	5.5	6.2	(3)	100.0	100.0	100.0	(3)	(3)	(3)	5.5	6.2	(3)
Hispanic (2)	100.0	100.0	100.0	2.6	2.1	3.9	91.1	87.9	100.0	13.7	(3)	53.1	15.9	2.1	54.9

Table 18 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Mechanical	93.6	93.6	94.5	1.5	1.4	4.1	92.9	92.8	97.6	0.9	0.9	1.0	2.4	2.3	5.1
White	93.2	93.2	93.6	1.2	1.2	4.1	92.8	92.6	97.7	.8	.8	1.2	2.1	2.0	5.3
Black	99.1	99.1	100.0	3.3	2.2	21.7	94.6	95.3	81.1	1.9	2.0	(3)	5.2	4.2	21.7
Asian	98.0	97.9	100.0	4.5	4.7	(3)	93.9	93.7	100.0	1.8	1.8	(3)	6.2	6.4	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	95.8	95.8	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.2	99.1	100.0	1.2	1.3	(3)	84.7	84.0	100.0	1.4	1.5	(3)	2.6	2.8	(3)
Mining	92.6	92.4	98.2	3.3	2.9	13.6	90.9	90.8	94.3	2.5	2.5	2.1	5.7	5.3	15.5
White	92.7	92.6	97.9	3.4	2.9	15.9	93.8	93.8	93.1	2.6	2.6	2.6	5.8	5.4	18.1
Black	41.8	41.8	(3)	(3)	(3)	(3)	88.7	88.7	(3)	18.3	18.3	(3)	18.3	18.3	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	100.0	100.0	(3)	2.4	2.4	(3)	1.6	1.6	(3)	(3)	(3)	(3)	2.4	2.4	(3)
Hispanic (2)	87.7	84.9	100.0	35.0	17.7	100.0	100.0	100.0	(3)	(3)	(3)	(3)	35.0	17.7	100.0
Nuclear	97.4	97.5	95.9	.6	.6	1.5	98.6	98.5	100.0	.6	.6	.3	1.2	1.2	1.9
White	97.7	97.8	95.7	.6	.6	1.2	98.6	98.6	100.0	.3	.3	.4	.9	.9	1.6
Black	100.0	100.0	100.0	2.4	(3)	18.2	100.0	100.0	100.0	(3)	(3)	(3)	2.4	(3)	18.2
Asian	94.5	94.5	92.7	.3	.3	(3)	98.2	98.2	100.0	4.8	4.9	(3)	5.1	5.2	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	93.2	94.4	82.4	3.0	3.3	(3)	100.0	100.0	100.0	(3)	(3)	(3)	3.0	3.3	(3)
Petroleum	97.1	97.0	99.1	2.9	2.8	4.1	90.4	90.9	82.0	2.3	2.4	.9	5.1	5.1	5.0
White	97.1	96.9	100.0	1.3	1.1	5.0	90.0	90.7	78.4	.8	.8	1.1	2.1	1.9	6.0
Black	97.4	97.1	100.0	(3)	(3)	(3)	98.4	100.0	87.2	(3)	(3)	(3)	(3)	(3)	(3)
Asian	97.4	99.6	82.6	3.3	3.7	(3)	97.0	96.6	100.0	1.0	1.2	(3)	4.3	4.8	(3)
Native American	94.5	93.8	100.0	42.1	48.5	(3)	77.8	71.2	100.0	(3)	(3)	(3)	42.1	48.5	(3)
Hispanic (2)	100.0	100.0	100.0	.9	1.0	(3)	99.2	99.1	100.0	(3)	(3)	(3)	.9	1.0	(3)
Other engineers	98.7	98.8	97.9	.7	.7	.6	94.1	94.0	95.1	1.0	.9	2.6	1.6	1.6	3.2
White	98.7	98.7	98.1	.5	.5	.7	93.8	93.7	94.9	1.0	1.0	2.6	1.6	1.5	3.2
Black	100.0	100.0	100.0	.6	.7	(3)	96.0	96.5	91.9	1.1	.7	4.4	1.7	1.4	4.4
Asian	99.6	99.7	97.8	.3	.3	(3)	98.0	97.8	100.0	.5	.4	1.5	.8	.7	1.5
Native American	95.0	100.0	36.8	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.3	99.3	100.0	.1	(3)	1.5	95.3	95.5	93.0	.1	(3)	1.1	.2	(3)	2.6

p = estimates used for computing rates for 1986 are preliminary data

(1) Detail will not average to total because
    a) racial and ethnic categories are not mutually exclusive
    b) total includes other and no report
(2) Includes members of all racial groups
(3) Too few cases to estimate

NOTE: See Technical Notes for definitions of market rates
SOURCE: National Science Foundation

Table 19. Selected market characteristics of doctoral scientists and engineers by field, sex, and racial/ethnic group: 1985

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total, all fields (1)	95.1	95.4	93.1	0.8	0.7	1.8	91.3	91.5	89.8	1.7	1.3	3.9	2.5	2.0	5.6
White	94.7	95.1	92.8	.8	.7	1.8	91.0	91.2	89.9	1.6	1.2	3.9	2.4	1.9	5.6
Black	97.5	97.8	96.8	1.2	1.1	1.3	85.6	88.0	79.8	3.4	3.4	3.4	4.5	4.5	4.6
Asian	98.2	98.6	95.4	.9	.7	2.6	94.9	95.2	92.6	2.4	2.1	4.3	3.3	2.8	6.8
Native American	96.1	96.8	91.5	.4	(3)	3.1	90.4	89.5	96.8	2.7	1.6	11.1	3.1	1.6	13.8
Hispanic (2)	96.7	96.8	96.4	1.6	.9	5.0	91.2	91.7	88.4	2.3	1.6	5.5	3.8	2.5	10.2
Total scientists	94.6	95.0	93.0	.9	.7	1.9	90.9	91.1	89.6	1.9	1.5	3.9	2.8	2.2	5.7
White	94.3	94.7	92.7	.9	.7	1.8	90.7	90.9	89.8	1.8	1.4	3.9	2.7	2.0	5.7
Black	97.3	97.5	96.8	1.3	1.3	1.3	84.5	86.9	79.4	3.7	3.8	3.5	5.0	5.1	4.7
Asian	97.7	98.2	95.3	1.0	.6	2.8	94.5	95.0	92.1	3.4	3.1	4.5	4.3	3.7	7.1
Native American	95.3	96.1	90.8	.5	(3)	3.4	88.5	87.2	96.5	3.3	1.9	12.3	3.7	1.9	15.3
Hispanic (2)	97.9	98.2	96.4	1.4	.5	5.1	92.5	93.4	88.4	2.6	1.9	5.4	3.9	2.4	10.2
Physical scientists	93.2	93.4	90.6	.9	.8	2.2	90.9	90.9	90.4	1.0	.8	3.0	1.9	1.6	5.2
White	92.6	92.8	89.8	1.0	.9	2.3	90.3	90.3	89.8	.8	.6	3.3	1.8	1.5	5.5
Black	100.0	100.0	100.0	.4	.4	(3)	96.4	98.5	75.5	.4	(3)	4.1	.8	.4	4.1
Asian	97.9	98.5	93.6	.4	.2	1.8	95.9	96.0	94.9	2.6	2.7	2.0	3.0	2.9	3.7
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.7	100.0	97.3	.6	.4	2.8	97.8	98.2	94.2	1.1	.6	4.8	1.7	1.0	7.5
Chemists	91.9	92.1	90.2	1.1	1.1	2.1	91.2	91.3	89.9	.9	.7	3.2	2.0	1.7	5.2
White	91.2	91.4	89.3	1.2	1.2	2.1	90.7	90.8	88.9	.8	.5	3.5	2.0	1.7	5.5
Black	100.0	100.0	100.0	(3)	(3)	(3)	97.1	99.1	81.0	.5	(3)	4.8	.5	(3)	4.8
Asian	97.0	97.6	93.7	.5	.3	1.8	95.1	95.1	95.4	2.4	2.5	1.9	2.9	2.7	3.6
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.9	100.0	99.0	.4	(3)	3.1	97.6	98.3	93.5	.7	.3	3.2	1.2	.3	6.3
Physicists/astronomers	95.6	95.7	92.1	.4	.4	2.7	90.3	90.2	92.7	1.1	1.0	2.4	1.5	1.4	5.1
White	95.2	95.3	92.0	.5	.4	2.9	89.5	89.3	93.6	.9	.8	2.5	1.4	1.2	5.3
Black	100.0	100.0	100.0	1.4	1.5	(3)	94.4	97.0	42.9	(3)	(3)	(3)	1.4	1.5	(3)
Asian	99.6	100.0	93.1	.1	(3)	1.6	97.3	97.5	92.5	3.1	3.2	2.5	3.2	3.2	4.1
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.3	100.0	84.6	1.1	1.1	(3)	98.2	98.1	100.0	1.8	1.1	18.2	2.9	2.2	18.2

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Mathematical scientists	96.3	96.7	92.9	0.5	0.4	1.0	92.4	92.4	92.8	0.7	0.7	1.3	1.2	1.1	2.3
White	96.1	96.4	92.6	.5	.5	.9	92.4	92.3	93.0	.8	.7	1.3	1.3	1.2	2.2
Black	100.0	100.0	100.0	(3)	(3)	(3)	94.0	93.7	95.8	(3)	(3)	(3)	(3)	(3)	(3)
Asian	98.4	99.2	93.2	.4	.2	2.1	93.5	93.9	91.0	.3	.2	1.1	.7	.3	3.1
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.2	100.0	94.7	(3)	(3)	(3)	100.0	100.0	100.0	3.8	4.4	(3)	3.8	4.4	(3)
Mathematicans	96.0	96.4	91.9	.5	.4	1.2	91.7	91.6	92.5	.9	.8	1.6	1.3	1.2	2.8
White	95.7	96.1	91.7	.5	.4	1.0	91.6	91.5	91.9	.9	.8	1.7	1.4	1.3	2.7
Black	100.0	100.0	100.0	(3)	(3)	(3)	95.2	95.2	95.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	98.0	99.0	92.1	.6	.2	2.9	93.4	92.8	97.1	.4	.2	1.5	1.0	.4	4.3
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.2	100.0	94.7	(3)	(3)	(3)	100.0	100.0	100.0	4.0	4.6	(3)	4.0	4.6	(3)
Statisticians	98.0	98.2	96.7	.5	.6	.3	96.4	96.7	93.9	(3)	(3)	(3)	.5	.6	.3
White	97.8	97.9	96.8	.6	.7	.4	96.8	96.7	97.4	(3)	(3)	(3)	.6	.7	.4
Black	100.0	100.0	100:0	(3)	(3)	(3)	85.0	81.3	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	99.4	100.0	96.4	(3)	(3)	(3)	93.8	97.2	75.5	(3)	(3)	(3)	(3)	(3)	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Computer specialists	99.9	100.0	99.2	(3)	(3)	.1	99.2	99.2	99.6	.5	.3	2.0	.5	.3	2.2
White	99.9	100.0	99.1	(3)	(3)	.1	99.1	99.0	99.5	.4	.2	1.9	.5	.3	2.0
Black	100.0	100.0	100.0	(3)	(3)	(3)	98.8	98.7	100.0	8.2	9.3	(3)	8.2	9.3	(3)
Asian	100.0	100.0	100.0	.2	.2	(3)	100.0	100.0	100.0	.4	(3)	3.3	.5	.2	3.3
Native American	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	6.6	6.8	(3)	6.6	6.8	(3)
Environmental scientists	96.8	96.8	96.1	.6	.6	1.2	96.3	96.4	95.6	1.0	.7	5.4	1.6	1.3	6.5
White	96.6	96.7	96.1	.7	.6	1.1	96.2	96.3	95.3	1.0	.7	5.5	1.7	1.4	6.6
Black	99.0	100.0	90.9	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	98.9	98.8	100.0	.2	(3)	2.4	97.3	97.1	98.8	1.3	1.0	4.9	1.5	1.0	7.2
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	89.6	93.5	38.9	(3)	(3)	(3)	(3)	(3)	(3)

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Earth scientists	96.1	96.2	95.1	0.5	0.4	1.3	96.1	96.1	96.2	1.1	0.9	5.1	1.6	1.3	6.4
White	95.9	96.0	95.2	.5	.4	1.4	96.0	96.0	95.9	1.1	.9	5.6	1.6	1.3	6.9
Black	98.1	100.0	90.9	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	98.6	98.5	100.0	(3)	(3)	(3)	97.2	97.0	100.0	1.2	1.3	(3)	1.2	1.3	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	89.6	89.3	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Oceanographers	99.7	100.0	98.0	1.1	1.2	.4	95.9	96.2	93.5	.8	(3)	6.5	1.9	1.2	6.9
White	99.7	100.0	98.0	1.1	1.2	.4	95.9	96.2	93.8	.9	(3)	6.6	2.0	1.2	7.0
Black	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	93.9	94.8	80.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	86.5	96.9	20.0	(3)	(3)	(3)	(3)	(3)	(3)
Atmospheric scientists	98.2	98.1	100.0	1.2	1.1	2.4	98.2	98.2	96.3	.7	.5	4.9	1.9	1.6	7.1
White	98.0	97.9	100.0	1.2	1.2	(3)	98.0	98.1	94.5	.6	.6	(3)	1.8	1.8	(3)
Black	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	1.4	(3)	6.9	100.0	100.0	100.0	2.9	(3)	14.8	4.3	(3)	20.7
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	94.1	100.0	25.0	(3)	(3)	(3)	(3)	(3)	(3)
Life scientists	93.7	94.4	91.2	1.1	.9	1.8	94.8	95.1	93.7	2.2	1.8	3.8	3.3	2.7	5.6
White	93.5	94.2	90.7	1.1	.9	1.8	94.9	95.1	93.9	2.1	1.6	3.9	3.1	2.5	5.6
Black	94.4	94.0	95.0	1.3	1.1	1.8	89.0	93.1	81.4	3.0	2.4	4.2	4.3	3.4	5.9
Asian	96.9	97.6	94.9	1.7	1.3	2.8	96.2	96.4	95.4	3.4	3.6	2.8	5.0	4.9	5.5
Native American	88.9	86.6	100.0	1.7	(3)	8.7	95.8	94.8	100.0	3.4	3.1	4.8	5.0	3.1	13.0
Hispanic (2)	96.9	96.9	96.8	1.6	.7	5.2	97.3	97.2	97.6	1.9	1.5	3.5	3.4	2.2	8.6
Biological scientists	93.4	94.3	90.1	1.5	1.2	2.4	93.8	94.0	93.0	2.5	2.1	4.3	4.0	3.3	6.6
White	93.0	94.0	89.3	1.4	1.2	2.3	93.8	94.0	93.0	2.5	2.0	4.5	3.9	3.2	6.7
Black	96.3	97.8	93.8	.8	(3)	2.2	88.3	91.4	82.7	2.5	2.2	3.0	3.3	2.2	5.1
Asian	97.5	98.2	95.9	1.7	1.2	2.9	96.4	97.1	94.7	3.2	3.4	2.9	4.8	4.5	5.7
Native American	77.6	71.7	100.0	(3)	(3)	(3)	94.2	92.1	100.0	7.7	7.9	7.1	7.7	7.9	7.1
Hispanic (2)	99.3	99.4	98.8	2.5	1.3	7.2	98.1	98.1	98.1	1.5	.8	4.5	4.0	2.0	11.4

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Agricultural scientists	92.9	93.0	91.6	1.0	0.8	3.5	95.3	95.2	95.7	1.0	0.8	3.9	1.9	1.6	7.2
White	92.9	92.9	92.8	.8	.7	3.3	95.7	95.7	96.2	.8	.6	4.1	1.6	1.3	7.2
Black	81.8	79.7	100.0	(3)	(3)	(3)	89.3	91.5	73.3	1.7	(3)	13.3	1.7	(3)	13.3
Asian	95.1	97.0	78.3	3.8	3.5	6.9	89.1	88.6	94.0	4.1	4.5	(3)	7.8	7.8	6.9
Native American	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	91.0	90.2	100.0	(3)	(3)	(3)	97.8	97.6	100.0	1.1	1.2	(3)	1.1	1.2	(3)
Medical scientists	95.1	95.6	93.5	.4	.4	.6	96.9	97.5	94.9	2.0	1.7	2.9	2.4	2.1	3.4
White	95.0	95.6	93.3	.3	.3	.4	97.0	97.5	95.4	1.8	1.5	2.8	2.2	1.8	3.2
Black	94.9	94.1	96.1	2.3	3.0	1.4	89.9	96.3	80.4	4.1	3.4	5.0	6.3	6.3	6.3
Asian	96.3	96.6	95.0	.7	.5	1.6	98.8	99.1	97.9	3.5	3.6	3.2	4.2	4.1	4.7
Native American	100.0	100.0	100.0	5.7	(3)	28.6	93.9	92.9	100.0	(3)	(3)	(3)	5.7	(3)	28.6
Hispanic (2)	95.2	96.0	92.5	.5	(3)	2.3	95.4	95.2	96.4	2.9	3.0	2.4	3.3	3.0	4.7
Psychologists	95.9	96.3	95.0	.9	.6	1.4	91.9	91.7	92.4	1.9	1.6	2.7	2.8	2.1	4.1
White	95.8	96.3	94.9	.8	.5	1.4	92.2	91.9	93.0	1.9	1.6	2.6	2.7	2.1	4.0
Black	99.2	100.0	98.4	.8	1.4	.3	80.6	80.9	80.3	2.4	1.5	3.3	3.2	2.9	3.6
Asian	99.0	100.0	97.9	2.5	1.7	3.2	87.8	86.8	89.0	4.1	1.5	6.9	6.5	3.2	9.9
Native American	96.3	100.0	86.4	(3)	(3)	(3)	92.3	93.2	89.5	12.8	6.8	31.6	12.8	6.8	31.6
Hispanic (2)	95.0	94.4	96.0	2.7	(3)	7.9	88.9	89.9	86.9	3.5	1.8	7.0	6.1	1.8	14.4
Social scientists	94.4	94.7	93.1	1.0	.6	2.7	79.8	80.7	76.0	3.4	2.7	6.7	4.4	3.3	9.2
White	94.1	94.4	92.9	1.0	.6	2.7	79.5	80.3	76.2	3.1	2.3	6.5	4.0	2.8	9.0
Black	97.3	97.6	96.6	2.0	2.0	2.3	77.4	78.4	74.7	6.6	7.8	3.2	8.5	9.6	5.5
Asian	97.3	97.5	96.0	1.2	.6	5.1	87.5	89.4	74.1	7.3	6.3	14.6	8.4	6.8	19.0
Native American	97.7	100.0	83.3	(3)	(3)	(3)	70.1	66.1	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	99.2	100.0	95.7	1.4	1.0	3.0	82.3	83.4	77.6	3.4	2.5	7.1	4.7	3.5	9.9
Economists	94.2	94.4	92.3	.2	.1	.6	82.2	82.2	82.4	1.5	1.4	2.2	1.6	1.5	2.7
White	93.9	94.1	91.8	.2	.1	.7	80.6	80.4	82.3	1.1	.9	2.4	1.2	1.0	3.1
Black	91.2	91.5	89.4	(3)	(3)	(3)	93.2	92.2	100.0	7.1	8.2	(3)	7.1	8.2	(3)
Asian	96.8	96.5	100.0	(3)	(3)	(3)	95.7	97.4	77.0	4.7	5.1	(3)	4.7	5.1	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	98.7	100.0	87.8	(3)	(3)	(3)	96.8	98.5	80.6	2.9	1.7	13.9	2.9	1.7	13.9

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Sociologists/anthropologists	93.0	93.3	92.0	2.1	1.0	4.8	81.1	81.5	80.0	6.8	5.6	10.0	8.8	6.5	14.3
White	92.8	93.1	92.1	2.0	.9	4.6	81.2	81.7	79.8	7.0	5.7	10.1	8.8	6.6	14.3
Black	96.8	97.8	95.1	3.3	2.2	5.2	74.1	73.1	75.8	3.7	2.7	5.5	7.0	4.9	10.4
Asian	94.8	95.5	92.5	3.4	1.3	10.8	92.3	93.9	85.9	3.1	1.1	11.1	6.5	2.3	20.7
Native American	100.0	100.0	100.0	(3)	(3)	(3)	29.3	21.6	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	98.1	100.0	93.0	4.3	5.7	(3)	69.3	65.8	79.2	9.9	10.7	7.5	13.7	15.8	7.5
Other social scientists	95.1	95.4	94.0	1.0	.8	2.1	78.1	79.5	72.1	3.1	2.5	6.0	4.1	3.2	8.0
White	94.7	95.0	93.6	1.0	.7	2.0	78.3	79.7	72.5	2.6	1.9	5.5	3.5	2.6	7.4
Black	99.5	100.0	98.4	2.2	2.6	1.3	73.7	74.9	70.6	7.3	9.1	2.7	9.4	11.5	4.0
Asian	98.4	98.8	95.7	1.6	.9	5.2	79.2	81.0	68.1	10.8	8.7	23.2	12.1	9.5	27.2
Native American	90.3	100.0	78.6	(3)	(3)	(3)	67.9	47.1	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	1.2	(3)	5.3	76.5	76.7	75.7	1.0	(3)	4.7	2.2	(3)	9.7
Total engineers	97.5	97.5	97.7	.5	.5	.9	93.4	93.3	96.9	.7	.7	1.8	1.2	1.2	2.7
White	97.1	97.1	98.0	.5	.5	.9	92.8	92.7	96.2	.7	.7	1.8	1.2	1.2	2.6
Black	99.4	100.0	93.0	(3)	(3)	(3)	96.5	96.2	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	99.1	99.1	96.9	.8	.8	.9	95.6	95.5	99.0	.6	.5	2.2	1.4	1.3	3.2
Native American	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	89.9	89.7	100.0	2.9	2.9	(3)	82.6	82.4	90.9	.3	(3)	9.1	3.1	2.9	9.1
Aeronautical/astronautical	99.9	100.0	97.9	.5	.5	(3)	94.6	94.5	100.0	1.2	1.2	(3)	1.7	1.7	(3)
White	99.9	100.0	97.3	.5	.5	(3)	93.7	93.6	100.0	1.4	1.4	(3)	1.8	1.9	(3)
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	.6	.6	(3)	100.0	100.0	100.0	(3)	(3)	(3)	.6	.6	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Chemical	94.5	94.6	92.9	1.8	1.7	3.8	87.9	87.9	93.1	(3)	(3)	(3)	1.8	1.7	3.8
White	93.7	93.7	94.2	1.4	1.3	4.9	85.0	84.9	90.9	(3)	(3)	(3)	1.4	1.3	4.9
Black	100.0	100.0	100.0	(3)	(3)	(3)	95.5	95.3	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	96.7	96.8	88.0	2.8	2.9	(3)	95.4	95.3	100.0	(3)	(3)	(3)	2.8	2.9	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	95.6	95.5	100.0	(3)	(3)	(3)	(3)	(3)	(3)

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Civil	96.1	96.1	96.9	0.8	0.7	4.2	92.7	92.7	94.5	0.8	0.7	7.7	1.5	1.4	11.6
White	95.6	95.5	100.0	1.0	.9	4.9	91.3	91.3	93.5	1.0	.9	9.1	1.9	1.7	13.6
Black	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Asian	97.8	98.1	82.4	(3)	(3)	(3)	97.6	97.6	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Electrical/electronics	98.3	98.3	99.4	.6	.6	(3)	94.7	94.6	98.8	.1	(3)	2.3	.6	.6	2.3
White	98.0	98.0	100.0	.7	.7	(3)	93.9	93.8	98.4	(3)	(3)	1.2	.7	.7	1.2
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	99.3	99.4	97.8	(3)	(3)	(3)	97.3	97.2	100.0	.2	(3)	5.7	.2	(3)	5.7
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	74.5	73.8	100.0	(3)	(3)	(3)	89.0	88.6	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Materials science	97.9	97.9	97.2	.2	.2	(3)	94.9	94.8	96.7	.7	.7	1.6	.9	.9	1.6
White	97.3	97.3	97.2	.3	.3	(3)	93.6	93.5	96.6	.8	.8	1.1	1.1	1.1	1.1
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	99.9	100.0	96.4	(3)	(3)	(3)	99.4	99.5	96.2	.1	(3)	3.8	.1	(3)	3.8
Native American	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	100.0	(3)	(3)	(3)	96.9	100.0	77.8	3.1	(3)	22.2	3.1	(3)	22.2
Mechanical	97.2	97.2	95.1	(3)	(3)	(3)	92.2	92.1	96.6	1.2	1.2	(3)	1.2	1.2	(3)
White	96.4	96.4	100.0	(3)	(3)	(3)	93.7	93.7	95.5	1.5	1.5	(3)	1.5	1.5	(3)
Black	96.4	100.0	(3)	(3)	(3)	(1)	100.0	100.0	(1)	(3)	(3)	(1)	(3)	(3)	(1)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	85.4	85.2	100.0	.2	.2	(3)	.2	.2	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	80.5	80.5	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Nuclear	100.0	100.0	100.0	(3)	(3)	(3)	92.3	92.3	96.9	(3)	(3)	(3)	(3)	(3)	(3)
White	100.0	100.0	100.0	(3)	(3)	(3)	92.9	92.9	95.2	(3)	(3)	(3)	(3)	(3)	(3)
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	(3)	(3)	(3)	89.1	88.9	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Native American	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)

Table 19 cont.

Field and racial/ethnic group	Labor force participation rate			Unemployment rate			S/E employment rate			S/E underemployment rate			S/E underutilization rate		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Systems design	100.0	100.0	100.0	0.3	0.2	1.9	91.7	91.5	97.4	1.5	1.6	0.0	1.8	1.8	1.9
White	100.0	100.0	100.0	(3)	(3)	(3)	90.9	90.6	96.8	1.7	1.8	(3)	1.7	1.8	(3)
Black	100.0	100.0	100.0	(3)	(3)	(3)	100.0	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	2.8	2.2	10.3	97.6	97.5	100.0	(3)	(3)	(3)	2.8	2.2	10.3
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	100.0	100.0	(3)	(3)	(3)	(3)	31.3	31.3	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Other engineers	97.2	97.2	97.1	.3	.3	.5	95.1	95.1	95.9	1.1	1.1	2.2	1.5	1.4	2.7
White	96.7	96.7	96.3	.2	.2	.7	95.1	95.1	95.1	.9	.8	2.8	1.1	1.0	3.5
Black	100.0	100.0	100.0	(3)	(3)	(3)	88.3	87.5	100.0	(3)	(3)	(3)	(3)	(3)	(3)
Asian	100.0	100.0	100.0	1.2	1.2	(3)	96.9	96.8	98.6	2.9	3.0	(3)	4.1	4.3	(3)
Native American	100.0	100.0	(3)	(3)	(3)	(3)	100.0	100.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Hispanic (2)	90.9	90.6	100.0	14.4	14.8	(3)	100.0	100.0	100.0	(3)	(3)	(3)	14.4	14.8	(3)

(1) Detail will not average to total because
a) racial and ethnic categories are not mutually exclusive
b) total includes other and no report
(2) Includes members of all racial groups
(3) Too few cases to estimate

NOTE: See Technical Notes for definitions of market rates
SOURCE: National Science Foundation

Table 20. Selected market characteristics of recent science and engineering graduates by field and degree level: 1984 (1982 & 1983 graduates)

Field and degree level	Labor force participation rate	Unemployment rate	S/E employment rate	S/E underemployment rate	S/E underutilization rate
	Bachelor's (1)				
Total, all fields	96.0	5.5	61.7	11.4	16.3
Total scientists	95.2	6.3	49.9	14.6	20.0
Physical scientists	95.6	8.6	72.4	9.4	17.2
Chemists	95.3	8.4	70.2	9.8	17.3
Physicists/astronomers	97.1	9.7	79.9	6.1	15.2
Other physical scientists	93.4	7.3	66.6	14.4	20.7
Mathematical scientists	95.8	3.2	74.3	11.2	14.1
Computer scientists	98.0	2.3	90.1	4.6	6.7
Environmental scientists	94.6	8.6	61.0	23.9	30.4
Life scientists	94.5	7.5	60.8	14.4	20.8
Biological scientists	93.7	8.5	57.2	15.3	22.5
Agricultural scientists	95.9	5.9	66.6	13.0	18.1
Psychologists	94.1	8.0	24.8	17.8	24.4
Social scientists	94.8	6.4	31.4	17.6	22.9
Economists	95.5	4.5	39.2	11.7	15.7
Sociologists/anthropologists	95.3	7.1	22.5	18.6	24.4
Other social scientists	94.1	7.1	31.7	21.3	26.9
Total engineers	97.9	3.8	88.7	4.1	7.7
Aeronautical/astronautical	97.6	1.4	83.5	5.1	6.5
Chemical	98.3	5.5	84.2	9.9	14.8
Civil	98.8	3.5	90.1	3.8	7.1
Electrical/electronics	98.7	3.3	93.3	2.1	5.3
Industrial	96.4	3.5	77.3	4.4	7.8
Materials	94.4	3.2	91.2	1.5	4.7
Mechanical	97.4	4.4	89.9	3.0	7.3
Mining	97.4	8.7	85.8	14.8	22.3
Nuclear	98.0	4.4	86.0	3.4	7.6
Petroleum	99.2	5.3	94.3	3.8	8.9
Other engineers	96.8	2.4	81.1	6.4	8.6

Table 20 cont.

Field and degree level	Labor force participation rate	Unemployment rate	S/E employment rate	S/E under-employment rate	S/E under-utilization rate
	Master's (1)				
Total, all fields	97.3	3.5	80.7	6.3	9.6
Total scientists	96.5	3.7	74.8	8.5	11.9
Physical scientists	96.6	3.6	91.9	3.9	7.3
Chemists	97.5	6.3	91.1	3.8	9.9
Physicists/astronomers	94.8	2.5	94.3	1.3	3.7
Other physical scientists	97.5	(2)	90.0	7.6	7.6
Mathematical scientists	96.7	2.7	95.5	4.4	7.0
Computer scientists	97.6	1.1	94.2	.2	1.4
Environmental scientists	98.2	4.3	89.9	6.2	10.2
Life scientists	94.6	4.3	79.6	7.6	11.6
Biological scientists	94.0	4.3	78.7	7.1	11.1
Agricultural scientists	95.4	4.3	80.7	8.4	12.3
Psychologists	94.9	2.7	47.2	12.8	15.2
Social scientists	97.4	5.6	52.0	16.7	21.3
Economists	97.9	(2)	68.2	7.1	7.1
Sociologists/anthropologists	92.5	5.6	43.5	20.8	25.2
Other social scientists	98.5	7.2	48.7	18.9	24.7
Total engineers	99.1	3.0	94.0	1.5	4.4
Aeronautical/astronautical	100.0	(2)	92.4	.2	.2
Chemical	97.7	6.6	90.2	1.9	8.4
Civil	98.6	1.9	95.8	3.0	4.8
Electrical/electronics	99.3	1.9	95.9	.3	2.2
Industrial	100.0	3.9	93.8	1.8	5.6
Materials	97.6	1.5	93.0	.7	2.1
Mechanical	99.5	5.6	94.3	1.7	7.1
Mining	100.0	1.9	83.0	13.2	14.8
Nuclear	97.7	.7	93.8	1.7	2.4
Petroleum	99.0	5.6	93.7	(2)	5.6
Other engineers	99.4	2.1	91.9	1.5	3.6

(1) Exclusive of full-time graduate students
(2) Too few cases to estimate

NOTE: See Technical Notes for definitions of market rates
SOURCE: National Science Foundation

Table 20a. Selected market characteristics of recent doctoral science and engineering graduates: 1985 (1983 & 1984 graduates)

Field	Labor force participation rate	Unemployment rate	S/E employment rate	S/E under-employment rate	S/E under-utilization rate
Total, all fields	98.4	1.3	94.7	3.8	5.1
Total scientists	98.2	1.5	94.1	4.2	5.6
Physical scientists	99.3	.5	98.2	.2	.7
Chemists	99.0	.1	97.8	.3	.4
Physicists/astronomers	99.9	1.2	98.9	(1)	1.2
Mathematical scientists	99.4	.6	98.3	.3	1.0
Mathematicans	99.3	.7	98.0	.4	1.2
Statisticians	100.0	(1)	100.0	(1)	(1)
Computer specialists	100.0	.2	98.5	.2	.3
Environmental scientists	99.5	1.8	98.7	3.8	5.5
Earth scientists	99.5	.3	98.6	5.4	5.7
Oceanographers	99.1	4.8	98.2	(1)	4.8
Atmospheric scientists	100.0	5.4	100.0	(1)	5.4
Life scientists	96.6	2.4	96.2	2.5	4.8
Biological scientists	97.6	3.0	95.7	3.4	6.3
Agricultural scientists	99.6	2.3	97.2	.4	2.7
Medical scientists	92.5	1.1	97.0	1.4	2.4
Psychologists	98.1	.8	94.3	4.6	5.4
Social scientists	99.1	1.9	84.1	11.5	13.2
Economists	99.8	(1)	96.5	4.8	4.8
Sociologists/anthropologists	97.6	4.0	77.0	28.8	31.6
Other social scientists	99.3	2.2	80.2	9.6	11.5

Table 20a cont.

Field	Labor force participation rate	Unemployment rate	S/E employment rate	S/E under-employment rate	S/E unde utilizati rate
Total engineers	99.8	0.2	98.5	1.5	1.7
Aeronautical/astronautical	100.0	(1)	100.0	(1)	(1)
Chemical	99.3	(1)	100.0	(1)	(1)
Civil	100.0	(1)	99.6	.4	.4
Electrical/electronics	99.8	(1)	99.4	.5	.5
Materials science	100.0	(1)	98.6	(1)	(1)
Mechanical	99.3	(1)	100.0	(1)	(1)
Nuclear	100.0	(1)	100.0	(1)	(1)
Systems design	100.0	6.3	100.0	26.9	31.5
Other engineers	100.0	(1)	94.3	3.2	3.2

(1) Too few cases to estimate

NOTE: See Technical Notes for definitions of market rates.
SOURCE: National Science Foundation

Table 21. Average annual salaries of scientists and engineers by field, sex, and racial/ethnic group: 1984

Field	Sex/racial/ethnic group							
	Total (1)	Men	Women	White	Black	Asian	Native American	Hispanic (2)
Total, all fields	$37,400	$38,700	$27,600	$37,500	$32,500	$38,200	$40,500	$33,100
Total scientists	34,500	36,700	26,900	34,600	30,500	36,000	41,900	28,400
Physical scientists	38,900	40,100	29,400	39,200	33,800	38,100	54,900	31,400
Chemists	37,100	38,400	28,100	37,400	33,400	34,300	54,900	31,300
Physicists/astronomers	44,200	44,400	40,500	44,300	35,400	52,000	(3)	31,300
Other physical scientists	38,700	40,100	27,300	38,700	38,100	40,500	(3)	34,100
Mathematical scientists	40,500	41,700	34,800	40,600	36,100	42,600	43,700	32,900
Mathematicians	40,800	41,900	35,300	40,800	36,500	44,200	37,200	33,800
Statisticians	38,900	40,700	32,900	39,300	32,400	33,800	49,900	26,300
Computer specialists	35,700	37,300	30,900	35,700	32,600	36,600	46,900	31,100
Environmental scientists	39,100	40,100	29,700	39,100	31,600	40,600	49,100	36,600
Earth scientists	39,500	40,700	29,400	39,500	32,900	40,000	44,700	37,100
Oceanographers	37,600	40,000	24,100	37,500	(3)	28,400	60,000	22,600
Atmospheric scientists	37,300	37,400	35,700	37,300	29,100	44,200	(3)	36,300
Life scientists	31,100	33,200	22,700	31,100	28,100	33,600	37,600	29,200
Biological scientists	31,300	33,600	23,400	31,400	28,500	33,200	31,000	28,100
Agricultural scientists	27,500	29,600	15,800	27,200	22,300	37,200	44,300	28,700
Medical scientists	40,800	44,300	31,000	41,500	34,200	31,900	44,500	41,000
Psychologists	31,700	35,400	25,400	31,900	27,100	32,100	33,600	24,000
Social scientists	31,500	34,400	23,300	31,700	28,200	32,400	35,300	23,100
Economists	35,000	36,300	27,500	35,400	32,100	30,700	40,700	24,600
Sociologists/anthropologists	26,000	28,900	21,400	26,100	19,100	33,600	29,700	23,200
Other social scientists	31,100	34,900	22,700	31,100	32,700	34,300	12,000	21,400

Table 21 cont.

Field	Sex/racial/ethnic group							
	Total (1)	Men	Women	White	Black	Asian	Native American	Hispanic (2)
Total engineers	$39,600	$39,800	$31,400	$39,700	$35,200	$39,400	$39,600	$36,600
Aeronautical/astronautical	43,400	43,700	31,900	43,400	34,700	46,200	60,000	38,400
Chemical	43,100	44,000	32,000	43,600	34,000	39,200	24,500	39,300
Civil	36,600	36,800	27,900	36,500	34,100	37,800	39,300	31,900
Electrical/electronics	40,600	40,800	32,300	40,800	35,900	39,600	37,400	39,300
Industrial	37,200	37,500	27,400	37,400	31,900	33,300	36,400	33,900
Materials	40,800	41,300	28,400	41,000	34,300	39,300	41,900	28,500
Mechanical	39,900	40,100	32,000	40,000	37,200	39,100	44,600	38,200
Mining	39,200	39,400	33,800	38,900	41,500	53,500	(3)	40,900
Nuclear	41,200	41,500	32,600	41,300	40,500	41,600	(3)	31,300
Petroleum	43,900	44,700	32,700	44,000	43,000	45,600	42,400	47,200
Other engineers	38,500	38,800	32,800	38,600	34,900	40,100	35,300	35,400

(1) Detail will not average to total because
a) racial and ethnic categories are not mutually exclusive
b) total employed includes other and no report
(2) Includes members of all racial groups
(3) Too few cases to estimate

NOTE: Salaries computed for individuals employed full-time
SOURCE: National Science Foundation

Table 22. Median annual salaries of doctoral scientists and engineers by field, sex, and racial/ethnic group: 1985

Field	Total (1)	Sex/racial/ethnic group						
		Men	Women	White	Black	Asian	Native American	Hispanic (2)
Total, all fields	$44,800	$46,000	$35,000	$44,800	$40,100	$45,500	$42,100	$42,200
Total, all scientists	42,500	44,300	35,300	42,600	39,400	42,600	40,200	40,600
Physical scientists	47,000	47,900	38,600	47,600	42,700	44,300	(3)	47,300
Chemists	46,000	47,100	38,200	46,700	41,700	44,000	(3)	46,300
Physicists/astronomers	48,400	48,600	41,200	48,700	45,500	45,300	(3)	53,700
Mathematical scientists	42,100	42,600	35,400	42,200	41,200	39,500	(3)	39,300
Mathematicans	41,800	42,300	34,700	41,800	41,700	42,500	(3)	40,000
Statisticans	43,700	44,200	36,600	44,700	(3)	36,300	(3)	(3)
Computer specialists	46,000	46,700	38,600	45,900	(3)	46,900	(3)	48,600
Environmental scientists	46,600	47,300	38,700	46,100	(3)	53,000	(3)	40,600
Earth scientists	47,500	48,000	39,200	46,700	(3)	53,300	(3)	40,400
Oceanographers	42,300	43,400	36,900	42,300	(3)	(3)	(3)	(3)
Atmospheric scientists	47,300	47,600	39,100	47,000	(3)	50,300	(3)	(3)
Life scientists	41,700	43,400	35,100	41,800	40,000	41,000	39,800	40,600
Biological scientists	40,500	42,000	34,500	40,500	37,200	40,500	(3)	41,700
Agricultural scientists	41,200	42,000	31,900	41,500	39,600	36,300	(3)	34,700
Medical scientists	45,900	50,400	36,200	46,300	41,700	43,700	(3)	46,000
Psychologists	39,500	40,700	34,800	39,700	35,400	37,200	(3)	36,600
Social scientists	40,500	41,600	34,600	40,600	38,600	39,600	(3)	36,500
Economists	46,100	46,600	38,300	46,500	41,300	40,700	(3)	52,200
Sociologists/anthropologists	37,200	39,200	34,200	37,600	31,400	32,800	(3)	36,000
Other social scientists	38,300	40,100	33,700	38,300	39,300	38,300	(3)	31,000
Total engineers	52,400	52,600	43,900	53,600	45,600	50,300	(3)	50,100
Aeronautical/astronautical	53,800	54,000	44,500	55,100	(3)	40,900	(3)	(3)
Chemical	55,700	55,800	43,500	60,800	(3)	50,000	(3)	(3)
Civil	48,500	48,700	37,000	48,600	(3)	45,100	(3)	(3)
Electrical/electronics	55,100	55,300	45,600	55,700	(3)	52,900	(3)	(3)
Materials science	51,800	52,000	45,900	53,000	(3)	50,200	(3)	(3)
Mechanical	51,100	51,300	42,000	51,700	(3)	50,600	(3)	(3)
Nuclear	54,200	54,200	(3)	54,500	(3)	(3)	(3)	(3)
Systems design	54,600	55,100	45,000	55,400	(3)	48,900	(3)	(3)
Other engineers	51,900	52,100	41,700	52,300	(3)	50,700	(3)	(3)

(1) Detail will not average to total because
a) racial and ethnic categories are not mutually exclusive
b) total includes other and no report
(2) Includes members of all racial groups
(3) Too few cases to estimate
NOTE: Salaries computed for individuals employed full-time
SOURCE: National Science Foundation

Table 23. Median annual salaries of recent science and engineering graduates by field and degree level: selected years

Field	Degree level		
	Bachelor recipients (1)	Master recipients (1)	Doctorate recipients (2)
Total, all fields	$21,000	$28,000	$32,100
Total, all scientists	17,500	25,400	30,300
Physical scientists	20,000	28,000	36,700
Chemists	18,700	27,600	36,600
Physicists/astronomers	25,000	28,400	37,800
Other physical scientists	19,000	26,000	NA
Mathematical scientists	22,400	29,000	30,400
Mathematicans	NA	NA	30,100
Statisticans	NA	NA	30,600
Computer specialists	25,600	34,500	41,900
Environmental scientists	16,000	30,000	31,400
Earth scientists	NA	NA	31,400
Oceanographers	NA	NA	NA
Atmospheric scientists	NA	NA	NA
Life scientists	15,000	18,000	29,200
Biological scientists	15,000	18,000	27,100
Agricultural scientists	15,000	19,000	28,700
Medical scientists	NA	NA	32,300
Psychologists	14,000	18,600	28,000
Social scientists	16,000	20,600	28,500
Economists	18,600	27,000	33,900
Sociologists/anthropologists	14,000	20,000	24,800
Other social scientists	15,500	19,000	26,700

Table 23 cont.

Field	Degree level		
	Bachelor recipients (1)	Master recipients (1)	Doctorate recipients (2)
Total engineers	$27,000	$32,000	$39,900
Aeronautical/astronautical	27,800	32,000	NA
Chemical	28,000	32,000	NA
Civil	24,000	30,000	36,900
Electrical/electronics	28,000	35,000	42,200
Industrial	25,200	32,000	NA
Materials science	27,000	31,000	40,300
Mechanical	27,200	32,000	NA
Mining	24,500	30,000	NA
Nuclear	27,600	32,000	NA
Petroleum	33,500	36,800	NA
Systems design	NA	NA	NA
Other engineers	25,000	30,000	39,800

(1) 1982 and 1983 graduates in 1984
(2) 1983 and 1984 graduates in 1985

NA: Not available
NOTE: Salaries computed for individuals employed full-time
SOURCE: National Science Foundation

Table 24. Science and engineering bachelor's recipients by field and sex: 1974-84

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Total											
Total, all fields	305,062	294,920	292,174	288,543	288,157	288,625	291,983	294,867	302,118	307,225	314,666
Total science	261,532	254,855	253,060	246,962	240,746	234,905	232,743	230,799	234,327	234,271	238,135
Physical sciences	21,287	20,896	21,559	22,618	23,175	23,363	23,661	24,175	24,372	23,497	23,759
Chemistry	10,525	10,649	11,107	11,322	11,474	11,643	11,446	11,540	11,316	11,039	10,912
Physics	3,962	3,716	3,544	3,420	3,330	3,338	3,397	3,441	3,475	3,800	3,921
Geological sciences	3,256	3,324	3,362	3,879	4,344	4,503	4,600	5,205	5,542	6,104	6,552
Other	3,544	3,207	3,546	3,997	4,027	3,879	4,218	3,989	4,039	2,554	2,374
Mathematics	21,813	18,346	16,085	14,303	12,701	11,901	11,473	11,173	11,708	12,557	13,342
Computer sciences	4,757	5,039	5,664	6,426	7,224	8,769	11,213	15,233	20,431	24,678	32,435
Life sciences	68,226	72,710	77,301	78,472	77,138	75,085	71,617	68,086	65,041	63,237	59,613
Biological sciences	53,101	56,179	59,012	58,273	56,111	53,454	50,496	47,920	45,806	44,067	42,310
Agricultural sciences	15,125	16,531	18,289	20,199	21,027	21,631	21,121	20,166	19,235	19,170	17,303
Psychology	52,256	51,436	50,363	47,794	45,057	43,012	42,513	41,364	41,539	40,825	40,375
Social sciences	93,193	86,428	82,088	77,349	75,461	72,775	72,266	70,768	71,236	69,477	68,611
Economics	14,418	14,118	14,854	15,342	15,746	16,534	17,954	18,833	19,961	20,556	20,777
Sociology	35,896	31,817	27,970	24,989	22,991	20,545	19,164	17,582	16,324	14,343	13,320
Political sciences	30,932	29,314	28,515	26,576	26,245	25,817	25,658	25,217	25,885	26,020	25,943
Other	11,947	11,179	10,749	10,442	10,479	9,879	9,490	9,136	9,066	3,558	8,571
Total engineering	43,530	40,065	39,114	41,581	47,411	53,720	59,240	64,068	67,791	72,954	76,531
Aeronautical/astronautical	1,210	1,174	1,009	1,078	1,186	1,386	1,424	1,809	2,120	2,127	2,534
Chemical	3,454	3,142	3,203	3,581	4,615	5,655	6,383	6,604	6,814	7,256	7,558
Civil	8,145	7,790	8,059	8,376	9,265	9,941	10,442	10,752	10,570	10,054	9,750
Electrical	11,419	10,246	9,874	10,018	11,213	12,440	13,902	15,040	16,553	18,184	20,059
Industrial	2,921	2,583	2,241	2,264	2,712	2,804	3,217	3,878	4,044	3,824	4,020
Mechanical	7,737	6,949	6,841	7,771	8,924	10,171	11,863	13,388	13,988	15,729	16,691
Other	8,644	8,181	7,887	8,493	9,496	11,323	12,009	12,597	13,702	15,780	15,919

Table 24 cont.

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
						Men					
Total, all fields	213,269	201,578	196,577	191,090	188,107	186,333	186,009	186,425	188,957	191,614	196,650
Total science	170,445	162,373	158,906	151,595	144,193	137,532	132,783	129,474	129,503	128,379	130,952
Physical sciences	17,751	17,058	17,420	18,067	18,188	18,076	18,010	18,195	18,033	17,036	17,168
Chemistry	8,413	8,264	8,610	8,720	8,593	8,530	8,169	8,065	7,703	7,303	7,087
Physics	3,625	3,354	3,156	3,062	2,961	2,939	2,963	3,009	3,014	3,317	3,361
Geological sciences	2,723	2,749	2,756	3,043	3,386	3,445	3,469	3,902	4,126	4,535	4,935
Other	2,990	2,691	2,898	3,242	3,248	3,162	3,409	3,219	3,190	1,881	1,785
Mathematics	12,874	10,646	9,531	8,354	7,455	6,943	6,625	6,392	6,650	7,059	7,428
Computer sciences	3,977	4,083	4,540	4,887	5,360	6,306	7,814	10,280	13,316	15,687	20,369
Life sciences	50,390	51,899	53,512	52,863	50,184	47,537	44,021	40,610	38,115	36,677	34,253
Biological sciences	36,804	37,796	38,714	37,325	34,574	31,997	29,405	26,898	25,141	23,962	22,653
Agricultural sciences	13,586	14,103	14,798	15,538	15,610	15,540	14,616	13,712	12,974	12,715	11,600
Psychology	25,849	24,333	22,987	20,692	18,517	16,649	15,590	14,447	13,756	13,228	12,949
Social sciences	59,604	54,354	50,916	46,732	44,489	42,021	40,723	39,550	39,633	38,692	38,785
Economics	12,297	11,679	11,940	11,815	11,813	11,979	12,524	13,093	13,481	13,718	13,689
Sociology	15,314	13,330	11,379	9,802	8,423	7,155	6,383	5,357	4,886	4,360	4,275
Political sciences	24,733	22,704	21,310	19,079	18,077	17,197	16,446	15,946	16,026	15,792	15,778
Other	7,260	6,641	6,287	6,036	6,176	5,690	5,370	5,154	5,240	4,822	5,043
Total engineering	42,824	39,205	37,671	39,495	43,914	48,801	53,226	56,951	59,454	63,235	65,698
Aeronautical/astronautical	1,192	1,150	980	1,050	1,125	1,320	1,342	1,680	1,949	1,955	2,359
Chemical	3,337	3,001	2,927	3,152	3,899	4,649	5,168	5,336	5,328	5,618	5,661
Civil	8,016	7,640	7,807	7,943	8,575	8,986	9,451	9,628	9,375	8,728	8,441
Electrical	11,302	10,116	9,681	9,750	10,778	11,781	13,000	13,940	15,142	16,405	18,028
Industrial	2,877	2,524	2,154	2,115	2,389	2,376	2,672	3,111	3,092	2,824	2,949
Mechanical	7,674	6,867	6,694	7,535	8,458	9,568	10,981	12,252	12,768	14,284	14,927
Other	8,426	7,907	7,428	7,950	8,690	10,121	10,612	11,004	11,800	13,421	13,333

Table 24 cont.

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
						Women					
Total, all fields	91,793	93,342	95,597	97,453	100,060	102,292	105,974	108,442	113,161	115,611	118,016
Total science	91,087	92,482	94,154	95,367	96,563	97,373	99,960	101,325	104,824	105,892	107,183
Physical sciences	3,536	3,838	4,139	4,551	4,987	5,287	5,651	5,980	6,339	6,461	6,591
Chemistry	2,112	2,385	2,497	2,602	2,881	3,113	3,277	3,475	3,613	3,736	3,825
Physics	337	362	388	358	369	399	434	432	461	483	560
Geological sciences	533	575	606	836	958	1,058	1,131	1,303	1,416	1,569	1,617
Other	554	516	648	755	779	717	809	770	849	673	589
Mathematics	8,939	7,700	6,554	5,949	5,246	4,958	4,848	4,781	5,058	5,498	5,914
Computer sciences	780	956	1,124	1,539	1,864	2,463	3,399	4,953	7,115	8,991	12,066
Life sciences	17,836	20,811	23,789	25,609	26,954	27,548	27,596	27,476	26,926	26,560	25,360
Biological sciences	16,297	18,383	20,298	20,948	21,537	21,457	21,091	21,022	20,665	20,105	19,657
Agricultural sciences	1,539	2,428	3,491	4,661	5,417	6,091	6,505	6,454	6,261	6,455	5,703
Psychology	26,407	27,103	27,376	27,102	26,540	26,363	26,923	26,917	27,783	27,597	27,426
Social sciences	33,589	32,074	31,172	30,617	30,972	30,754	31,543	31,218	31,603	30,785	29,826
Economics	2,121	2,439	2,914	3,527	3,933	4,555	5,430	5,740	6,480	6,838	7,088
Sociology	20,582	18,487	16,591	15,187	14,568	13,390	12,781	12,225	11,438	9,983	9,045
Political sciences	6,199	6,610	7,205	7,497	8,168	8,620	9,212	9,271	9,859	10,228	10,165
Other	4,687	4,538	4,462	4,406	4,303	4,189	4,120	3,982	3,826	3,736	3,528
Total engineering	706	860	1,443	2,086	3,497	4,919	6,014	7,117	8,337	9,719	10,833
Aeronautical/astronautical	18	24	29	28	61	66	82	129	171	172	175
Chemical	117	141	276	429	716	1,006	1,215	1,268	1,486	1,638	1,897
Civil	129	150	252	433	690	955	991	1,124	1,195	1,326	1,309
Electrical	117	130	193	268	435	659	902	1,100	1,411	1,779	2,031
Industrial	44	59	87	149	323	428	545	767	952	1,000	1,071
Mechanical	63	82	147	236	466	603	882	1,136	1,220	1,445	1,764
Other	218	274	459	543	806	1,202	1,397	1,593	1,902	2,359	2,586

SOURCE: National Science Foundation and Center for Education Statistics,
Department of Education

Table 25. Science and engineering master's degree recipients by field and sex: 1974-84

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
						Total					
Total, all fields	54,175	53,852	54,747	56,731	56,237	54,456	54,391	54,811	57,025	58,868	59,569
Total science	38,782	38,418	38,577	39,842	39,222	38,263	37,545	37,438	38,431	39,147	39,217
Physical sciences	6,087	5,830	5,485	5,345	5,576	5,464	5,233	5,300	5,526	5,288	5,568
Chemistry	2,138	2,006	1,796	1,775	1,892	1,765	1,733	1,667	1,758	1,632	1,677
Physics	1,662	1,577	1,451	1,319	1,294	1,319	1,192	1,294	1,284	1,370	1,535
Geological sciences	938	932	1,003	1,047	1,239	1,300	1,295	1,396	1,540	1,552	1,514
Other	1,349	1,315	1,235	1,204	1,151	1,080	1,013	943	944	734	842
Mathematics	4,840	4,338	3,863	3,698	3,383	3,046	2,868	2,569	2,731	2,839	2,749
Computer sciences	2,276	2,299	2,603	2,798	3,038	3,055	3,647	4,218	4,935	5,321	6,190
Life sciences	9,605	9,618	9,823	10,707	10,711	10,719	10,278	9,731	9,824	9,720	9,330
Biological sciences	7,081	6,931	6,939	7,468	7,227	7,220	6,854	6,299	6,184	6,041	5,717
Agricultural sciences	2,524	2,687	2,884	3,239	3,484	3,499	3,424	3,432	3,640	3,679	3,613
Psychology	6,616	7,104	7,859	8,320	8,194	8,031	7,861	8,039	7,849	8,439	8,073
Social sciences	9,358	9,229	8,944	8,974	8,320	7,948	7,658	7,581	7,566	7,540	7,307
Economics	2,145	2,133	2,093	2,166	1,997	1,960	1,823	1,913	1,968	1,975	1,893
Sociology	2,196	2,112	2,010	1,830	1,611	1,415	1,341	1,240	1,154	1,112	1,008
Political sciences	2,448	2,333	2,192	2,223	2,070	2,038	1,938	1,876	1,955	1,829	1,770
Other	2,569	2,651	2,649	2,755	2,642	2,535	2,556	2,552	2,489	2,624	2,636
Total engineering	15,393	15,434	16,170	16,889	17,015	16,193	16,846	17,373	18,594	19,721	20,352
Aeronautical/astronautical	557	477	479	385	411	372	382	408	521	491	562
Chemical	1,045	990	1,031	1,086	1,237	1,149	1,271	1,268	1,287	1,371	1,517
Civil	2,653	2,771	3,000	2,969	2,691	2,655	2,683	2,894	2,998	3,082	3,151
Electrical	3,499	3,471	3,774	3,788	3,742	3,596	3,842	3,902	4,465	4,532	5,079
Industrial	1,734	1,687	1,751	1,609	1,722	1,502	1,313	1,631	1,656	1,432	1,557
Mechanical	1,844	1,860	1,907	1,953	1,943	1,878	2,060	2,293	2,399	2,511	2,797
Other	4,061	4,178	4,228	5,099	5,269	5,041	5,295	4,977	5,268	6,302	5,689

Table 25 cont.

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
						Men					
Total, all fields	43,630	42,847	42,675	43,577	42,547	40,416	40,008	39,797	41,049	41,787	41,894
Total science	28,599	27,809	27,094	27,421	26,403	25,213	24,352	23,830	24,139	23,942	23,701
Physical sciences	5,200	4,982	4,660	4,458	4,630	4,472	4,258	4,213	4,325	4,151	4,253
Chemistry	1,664	1,590	1,413	1,327	1,447	1,318	1,286	1,194	1,261	1,167	1,139
Physics	1,526	1,453	1,319	1,193	1,171	1,184	1,074	1,179	1,128	1,208	1,341
Geological sciences	839	816	873	926	1,026	1,058	1,058	1,076	1,196	1,199	1,149
Other	1,171	1,123	1,055	1,012	986	912	840	764	740	577	624
Mathematics	3,340	2,910	2,550	2,398	2,233	1,989	1,832	1,692	1,821	1,859	1,795
Computer sciences	1,983	1,961	2,226	2,332	2,471	2,480	2,883	3,247	3,625	3,813	4,379
Life sciences	7,195	7,207	7,204	7,696	7,485	7,259	6,952	6,451	6,315	6,111	5,728
Biological sciences	4,937	4,858	4,746	4,956	4,695	4,510	4,325	3,853	3,621	3,421	3,167
Agricultural sciences	2,258	2,349	2,458	2,740	2,790	2,749	2,627	2,598	2,694	2,690	2,561
Psychology	3,986	4,059	4,188	4,316	3,931	3,688	3,397	3,371	3,228	3,254	2,980
Social sciences	6,895	6,690	6,266	6,221	5,653	5,325	5,030	4,856	4,825	4,754	4,566
Economics	1,842	1,808	1,759	1,783	1,601	1,568	1,441	1,468	1,483	1,506	1,447
Sociology	1,327	1,304	1,166	1,018	878	745	667	590	525	485	456
Political sciences	1,992	1,857	1,719	1,719	1,523	1,480	1,423	1,342	1,345	1,286	1,233
Other	1,734	1,721	1,622	1,701	1,651	1,532	1,499	1,456	1,472	1,477	1,430
Total engineering	15,031	15,038	15,581	16,156	16,144	15,203	15,656	15,967	16,910	17,845	18,193
Aeronautical/astronautical	548	470	469	377	400	355	373	388	482	454	535
Chemical	1,014	965	992	1,021	1,150	1,035	1,138	1,105	1,106	1,207	1,323
Civil	2,604	2,697	2,901	2,840	2,559	2,512	2,486	2,687	2,728	2,787	2,825
Electrical	3,444	3,413	3,670	3,654	3,600	3,453	3,658	3,681	4,177	4,239	4,694
Industrial	1,689	1,631	1,670	1,534	1,584	1,374	1,180	1,465	1,446	1,226	1,279
Mechanical	1,823	1,845	1,880	1,904	1,886	1,811	1,962	2,177	2,260	2,362	2,613
Other	3,909	4,017	3,999	4,826	4,965	4,663	4,859	4,464	4,711	5,570	4,924

Table 25 cont.

Field	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
						Women					
Total, all fields	10,545	11,005	12,072	13,154	13,690	14,040	14,383	15,014	15,976	17,081	17,675
Total science	10,183	10,609	11,483	12,421	12,819	13,050	13,193	13,608	14,292	15,205	15,516
Physical sciences	887	848	825	887	946	992	975	1,087	1,201	1,137	1,315
Chemistry	474	416	383	448	445	447	447	473	497	465	538
Physics	136	124	132	126	123	135	118	115	156	162	194
Geological sciences	99	116	130	121	213	242	237	320	344	353	365
Other	178	192	180	192	165	168	173	179	204	157	218
Mathematics	1,500	1,428	1,313	1,300	1,150	1,057	1,036	877	910	980	954
Computer sciences	293	338	377	466	567	575	764	971	1,310	1,508	1,811
Life sciences	2,410	2,411	2,619	3,011	3,226	3,460	3,326	3,280	3,509	3,609	3,602
Biological sciences	2,144	2,073	2,193	2,512	2,532	2,710	2,529	2,446	2,563	2,620	2,550
Agricultural sciences	266	338	426	499	694	750	797	834	946	989	1,052
Psychology	2,630	3,045	3,671	4,004	4,263	4,343	4,464	4,668	4,621	5,185	5,093
Social sciences	2,463	2,539	2,678	2,753	2,667	2,623	2,628	2,725	2,741	2,786	2,741
Economics	303	325	334	383	396	392	382	445	485	469	446
Sociology	869	808	844	812	733	670	674	650	629	627	552
Political sciences	456	476	473	504	547	558	515	534	610	543	537
Other	835	930	1,027	1,054	991	1,003	1,057	1,096	1,017	1,147	1,206
Total engineering	362	396	589	733	871	990	1,190	1,406	1,684	1,876	2,159
Aeronautical/astronautical	9	7	10	8	11	17	9	20	39	37	27
Chemical	31	25	39	65	87	114	133	163	181	164	194
Civil	49	74	99	129	132	143	197	207	270	295	326
Electrical	55	58	104	134	142	143	184	221	288	293	385
Industrial	45	56	81	75	138	128	133	166	210	206	278
Mechanical	21	15	27	49	57	67	98	116	139	149	184
Other	152	161	229	273	304	378	436	513	557	732	765

SOURCE: National Science Foundation and Center for Education Statistics, Department of Education

Table 26. Science and engineering doctorate degree recipients by field and sex: 1975-85

Field	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
					Total						
Total, all fields	18,358	17,864	17,416	17,048	17,245	17,199	17,633	17,626	17,931	18,074	18,255
Total science	15,356	15,030	14,773	14,625	14,755	14,720	15,105	14,980	15,150	15,161	15,090
Physical sciences	3,710	3,506	3,415	3,234	3,320	3,149	3,210	3,351	3,439	3,459	3,531
Chemistry	1,776	1,624	1,571	1,544	1,566	1,538	1,612	1,680	1,759	1,765	1,836
Physics	1,300	1,237	1,150	1,067	1,108	983	1,015	1,014	1,043	1,080	1,078
Geological sciences	634	645	694	623	646	628	583	657	637	614	617
Mathematics	981	855	832	783	744	744	728	720	701	698	689
Computer sciences	166	148	132	176	235	218	232	220	286	295	311
Life sciences	4,402	4,361	4,266	4,369	4,501	4,715	4,786	4,841	4,749	4,869	4,877
Biological sciences	3,497	3,573	3,484	3,516	3,646	3,803	3,804	3,890	3,734	3,872	3,766
Agricultural sciences	905	788	782	853	855	912	982	951	1,015	997	1,111
Psychology	2,751	2,883	2,989	3,055	3,091	3,098	3,358	3,158	3,309	3,232	3,075
Social sciences	3,346	3,277	3,139	3,008	2,864	2,796	2,791	2,690	2,666	2,608	2,607
Economics	868	855	811	778	780	745	808	737	792	767	785
Sociology	680	734	725	610	632	601	605	568	525	515	461
Political sciences	749	668	614	603	522	505	445	459	397	419	407
Other	1,049	1,020	989	1,017	930	945	933	926	952	907	954
Total engineering	3,002	2,834	2,643	2,423	2,490	2,479	2,528	2,646	2,781	2,913	3,165
Aeronautical/astronautical	141	122	115	103	81	81	97	86	106	119	124
Chemical	370	314	306	261	287	285	296	306	349	361	440
Civil	290	314	269	236	236	240	287	308	354	351	357
Electrical	612	592	544	463	533	478	478	544	517	593	631
Industrial	92	67	73	51	82	77	66	79	86	84	92
Mechanical	325	304	270	282	281	293	282	334	311	336	424
Other	1,172	1,121	1,066	1,027	990	1,025	1,022	989	1,058	1,069	1,097

Table 26 cont.

Field	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
					Men						
Total, all fields	15,522	14,883	14,310	13,735	13,662	13,398	13,610	13,483	13,462	13,500	13,602
Total science	12,572	12,103	11,741	11,365	11,234	11,009	11,181	10,961	10,805	10,738	10,635
Physical sciences	3,416	3,199	3,112	2,926	2,970	2,763	2,845	2,891	2,971	2,954	2,956
Chemistry	1,582	1,435	1,391	1,349	1,347	1,283	1,376	1,407	1,462	1,445	1,474
Physics	1,230	1,182	1,086	1,015	1,035	916	942	930	969	1,001	976
Geological sciences	604	582	635	562	588	564	527	554	540	508	506
Mathematics	882	758	723	672	629	649	616	624	588	583	583
Computer sciences	156	132	114	156	204	197	206	200	250	258	278
Life sciences	3,553	3,508	3,423	3,411	3,470	3,565	3,565	3,550	3,385	3,523	3,477
Biological sciences	2,691	2,770	2,697	2,623	2,695	2,750	2,717	2,750	2,503	2,659	2,537
Agricultural sciences	862	738	726	788	775	815	848	800	882	864	940
Psychology	1,878	1,937	1,902	1,928	1,831	1,787	1,885	1,721	1,736	1,612	1,556
Social sciences	2,687	2,569	2,467	2,272	2,130	2,048	2,064	1,975	1,875	1,808	1,785
Economics	784	763	740	687	676	643	708	639	663	647	663
Sociology	470	511	488	386	400	370	363	354	309	289	227
Political sciences	628	554	512	485	427	403	349	353	314	322	299
Other	805	741	728	714	627	632	644	629	589	550	596
Total engineering	2,950	2,780	2,569	2,370	2,428	2,389	2,429	2,522	2,657	2,762	2,967
Aeronautical/astronautical	139	122	112	102	81	80	97	85	104	117	119
Chemical	366	307	297	256	279	271	285	289	327	336	405
Civil	287	310	262	230	234	234	281	296	342	332	339
Electrical	603	585	532	451	525	466	464	525	510	579	603
Industrial	90	65	68	49	77	70	60	73	80	68	86
Mechanical	323	301	267	280	277	289	277	322	305	330	402
Other	1,142	1,090	1,031	1,002	955	979	965	935	989	1,000	1,013

Table 26 cont.

Field	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
						Women					
Total, all fields	2,836	2,981	3,106	3,313	3,583	3,801	4,023	4,143	4,469	4,574	4,653
Total science	2,784	2,927	3,032	3,260	3,521	3,711	3,924	4,019	4,345	4,423	4,455
Physical sciences	294	307	303	308	350	386	365	460	468	505	575
Chemistry	194	189	180	195	219	255	236	273	297	320	362
Physics	70	55	64	52	73	67	73	84	74	79	102
Geological sciences	30	63	59	61	58	64	56	103	97	106	111
Mathematics	99	97	109	111	115	95	112	96	113	115	106
Computer sciences	10	16	18	20	31	21	26	20	36	37	33
Life sciences	849	853	843	958	1,031	1,150	1,221	1,291	1,364	1,346	1,400
Biological sciences	806	803	787	893	951	1,053	1,087	1,140	1,231	1,213	1,229
Agricultural sciences	43	50	56	65	80	97	134	151	133	133	171
Psychology	873	946	1,087	1,127	1,260	1,311	1,473	1,437	1,573	1,620	1,519
Social sciences	659	708	672	736	734	748	727	715	791	800	822
Economics	84	92	71	91	104	102	100	98	129	120	122
Sociology	210	223	237	224	232	231	242	214	216	226	234
Political sciences	121	114	102	118	95	102	96	106	83	97	108
Other	244	279	262	303	303	313	289	297	363	357	358
Total engineering	52	54	74	53	62	90	99	124	124	151	198
Aeronautical/astronautical	2	0	3	1	0	1	0	1	2	2	5
Chemical	4	7	9	5	8	14	11	17	22	25	35
Civil	3	4	7	6	2	6	6	12	12	19	18
Electrical	9	7	12	12	8	12	14	19	7	14	28
Industrial	2	2	5	2	5	7	6	6	6	16	6
Mechanical	2	3	3	2	4	4	5	12	6	6	22
Other	30	31	35	25	35	46	57	57	69	69	84

SOURCE: National Science Foundation and National Academy of Sciences

Table 27. Science and engineering doctorate degree recipients by field and citizenship status: 1975 & 1985

Field	1975					1985				
			Non-U.S. Citizenship					Non-U.S. Citizenship		
	Total (1)	U.S. Citizens	Total	Temporary Residents	Permanent Residents	Total (1)	U.S. Citizens	Total	Temporary Residents	Permanent Residents
Total, all fields	18,358	14,015	3,988	2,742	1,246	18,255	12,621	4,847	3,950	897
Total science	15,356	12,299	2,755	1,927	828	15,090	11,342	3,119	2,537	582
Physical sciences	3,710	2,809	827	553	274	3,531	2,484	902	736	166
Chemistry	1,776	1,392	341	214	127	1,836	1,344	417	330	87
Physics	1,300	925	353	244	109	1,078	696	337	289	48
Geological sciences	634	492	133	95	38	617	444	148	117	31
Mathematics	981	729	228	170	58	689	376	281	239	42
Computer sciences	166	119	44	27	17	311	189	113	89	24
Life sciences	4,402	3,473	844	584	260	4,877	3,809	928	777	151
Biological sciences	3,497	2,910	507	317	190	3,766	3,126	530	422	108
Agricultural sciences	905	563	337	267	70	1,111	683	398	355	43
Psychology	2,751	2,552	156	101	55	3,075	2,772	140	82	58
Social sciences	3,346	2,617	656	492	164	2,607	1,712	755	614	141
Economics	868	628	217	171	46	785	424	326	269	57
Sociology	680	556	111	84	27	461	363	77	60	17
Political sciences	749	622	112	75	37	407	276	95	79	16
Other	1,049	811	216	162	54	954	649	257	206	51
Total engineering	3,002	1,716	1,233	815	418	3,165	1,279	1,728	1,413	315
Aeronautical/astronautical	141	96	44	28	16	124	53	68	51	17
Chemical	370	190	176	111	65	440	218	211	172	39
Civil	290	132	149	107	42	357	114	229	191	38
Electrical	612	356	247	175	72	631	247	337	272	65
Industrial	92	62	28	18	10	92	28	57	48	9
Mechanical	325	188	131	79	52	424	161	244	191	53
Other	1,172	692	458	297	161	1,097	458	582	488	94

(1) Includes citizenship status unknown
SOURCE: National Science Foundation and National Academy of Sciences

Table 28. Science and engineering graduate students in all institutions by field and sex: 1977-85

Field	1977	1979	1980	1981	1982	1983	1984	1985
				Total				
Total, all fields	323,927	333,943	340,740	347,595	354,717	368,059	380,336	386,926
Total sciences	254,785	261,681	265,656	267,116	270,123	274,904	283,516	286,558
Physical sciences	26,855	26,700	26,952	27,382	28,199	29,475	30,487	31,300
Chemistry	16,020	16,101	16,222	16,347	17,015	17,810	17,973	18,592
Physics	9,933	9,699	9,898	10,150	10,306	10,811	11,517	11,660
Other	902	900	832	885	878	854	997	1,048
Mathematical sciences	16,069	15,063	15,360	15,915	17,199	17,443	17,831	18,123
Computer sciences	9,108	11,690	13,578	16,437	19,812	23,616	25,364	29,426
Environmental sciences	13,658	13,854	14,208	14,422	15,174	15,609	15,803	16,008
Geosciences	8,071	8,532	8,668	8,808	9,621	10,321	10,366	10,457
Oceanography	1,957	1,867	1,992	2,082	2,091	2,063	2,191	2,283
Atmospheric sciences	924	852	889	882	889	896	907	964
Other	2,706	2,603	2,659	2,650	2,573	2,329	2,339	2,304
Life sciences (1)	61,076	60,572	60,144	59,079	58,624	58,381	59,179	59,352
Biological sciences	49,556	48,503	47,890	46,979	46,310	46,091	47,114	47,878
Agricultural sciences	11,520	12,069	12,254	12,100	12,314	12,290	12,065	11,474
Psychology	38,628	39,786	40,636	40,691	40,098	41,129	44,610	44,328
Social sciences	89,391	94,016	94,778	93,190	91,017	89,251	90,242	88,020
Economics	12,063	12,130	13,132	13,344	13,735	13,587	13,064	12,712
Sociology	8,864	8,159	8,001	7,816	7,246	6,949	6,861	6,637
Other social sciences	68,464	73,727	73,645	72,030	70,036	68,715	70,317	68,671
Total engineering	69,142	72,262	75,084	80,479	84,594	93,155	96,820	100,368
Aeronautical/astronautical	1,518	1,481	1,737	1,883	1,941	2,408	2,431	2,648
Chemical	5,201	5,605	6,015	6,496	7,189	7,563	7,445	7,160
Civil	12,712	13,217	13,502	14,515	14,523	15,406	15,739	15,396
Electrical	17,406	17,789	19,227	20,193	22,017	25,213	26,846	28,660
Industrial	10,438	10,714	9,870	10,026	9,870	10,712	11,175	12,655
Mechanical	8,722	9,251	9,888	10,618	11,467	12,911	13,923	14,126
Other engineering	13,145	14,205	14,845	16,748	17,587	18,942	19,261	19,723

Table 28 cont.

Field	1977	1979	1980	1981	1982	1983	1984	1985
Men								
Total, all fields	238,686	235,515	237,205	237,698	240,868	248,969	255,087	260,480
Total sciences	173,379	169,280	168,624	165,150	165,247	166,176	169,418	172,132
Physical sciences	22,816	22,205	22,352	22,366	22,776	23,594	24,212	24,718
Chemistry	12,936	12,683	12,718	12,544	12,855	13,297	13,274	13,735
Physics	9,129	8,813	8,950	9,133	9,238	9,609	10,172	10,165
Other	751	709	684	689	683	688	767	818
Mathematical sciences	11,944	11,027	11,272	11,419	12,109	12,222	12,562	12,585
Computer sciences	7,549	9,367	10,491	12,228	14,366	16,968	18,659	22,247
Environmental sciences	11,307	10,925	10,940	10,945	11,393	11,634	11,849	11,865
Geosciences	6,703	6,741	6,743	6,746	7,318	7,808	7,895	7,937
Oceanography	1,602	1,454	1,505	1,529	1,514	1,497	1,563	1,580
Atmospheric sciences	850	757	779	758	764	766	769	807
Other	2,152	1,973	1,913	1,912	1,797	1,563	1,622	1,541
Life sciences (1)	42,165	39,960	38,939	37,580	36,335	35,759	35,954	35,709
Biological sciences	32,712	30,499	29,492	28,210	27,021	26,576	27,017	27,188
Agricultural sciences	9,453	9,461	9,447	9,370	9,314	9,183	8,937	8,521
Psychology	20,520	19,427	19,036	17,902	16,980	16,709	17,222	17,406
Social sciences	57,078	56,369	55,594	52,710	51,288	49,290	48,960	47,602
Economics	9,749	9,498	10,126	10,139	10,237	10,159	9,882	9,555
Sociology	4,834	4,243	3,984	3,780	3,376	3,269	3,190	3,134
Other social sciences	42,495	42,628	41,484	38,791	37,675	35,862	35,888	34,913
Total engineering	65,307	66,235	68,581	72,548	75,621	82,793	85,669	88,348
Aeronautical/astronautical	1,485	1,432	1,663	1,816	1,831	2,283	2,298	2,483
Chemical	4,827	4,991	5,336	5,718	6,288	6,547	6,462	6,144
Civil	11,752	11,752	11,973	12,778	12,614	13,388	13,551	13,092
Electrical	16,696	16,856	18,244	18,917	20,466	23,157	24,624	26,230
Industrial	9,683	9,463	8,520	8,466	8,216	8,769	9,001	10,246
Mechanical	8,449	8,782	9,354	9,987	10,748	12,106	12,963	10,246
Other engineering	12,415	12,959	13,491	14,866	15,458	16,543	16,770	17,053

Table 28 cont.

Field	1977	1979	1980	1981	1982	1983	1984	1985
				Women				
Total, all fields	85,241	98,428	103,535	109,897	113,849	119,090	125,249	126,446
Total sciences	81,406	92,401	97,032	101,966	104,876	108,728	114,098	114,426
Physical sciences	4,039	4,495	4,600	5,016	5,423	5,881	6,274	6,583
Chemistry	3,084	3,418	3,504	3,803	4,160	4,513	4,699	4,858
Physics	804	886	948	1,017	1,068	1,202	1,345	1,495
Other	151	191	148	196	195	166	230	230
Mathematical sciences	4,125	4,036	4,088	4,496	5,090	5,221	5,269	5,538
Computer sciences	1,559	2,323	3,087	4,209	5,446	6,648	6,705	7,180
Environmental sciences	2,351	2,929	3,268	3,477	3,781	3,975	3,954	4,143
Geosciences	1,368	1,791	1,925	2,062	2,303	2,513	2,471	2,521
Oceanography	355	413	487	553	577	566	628	703
Atmospheric sciences	74	95	110	124	125	130	138	157
Other	554	630	746	738	776	766	717	763
Life sciences (1)	18,911	20,612	21,205	21,499	22,289	22,622	23,225	23,643
Biological sciences	16,844	18,004	18,398	18,769	19,289	19,515	20,097	20,690
Agricultural sciences	2,067	2,608	2,807	2,730	3,000	3,107	3,128	2,953
Psychology	18,108	20,359	21,600	22,789	23,118	24,420	27,388	26,922
Social sciences	32,313	37,647	39,184	40,480	39,729	39,961	41,282	40,417
Economics	2,314	2,632	3,006	3,205	3,498	3,428	3,183	3,157
Sociology	4,030	3,916	4,017	4,036	3,870	3,680	3,671	3,503
Other social sciences	25,969	31,099	32,161	33,239	32,361	32,853	34,428	33,757
Total engineering	3,835	6,027	6,503	7,931	8,973	10,362	11,151	12,020
Aeronautical/astronautical	33	49	74	67	110	125	133	165
Chemical	374	614	679	778	901	1,016	983	1,016
Civil	960	1,465	1,529	1,737	1,909	2,018	2,189	2,305
Electrical	710	933	983	1,276	1,551	2,056	2,222	2,430
Industrial	755	1,251	1,350	1,560	1,654	1,943	2,174	2,409
Mechanical	273	469	534	631	719	805	961	1,026
Other engineering	730	1,246	1,354	1,882	2,129	2,399	2,489	2,669

(1) Does not include health sciences
NOTE: Data were not collected in 1978
SOURCE: National Science Foundation

Table 29. Full-time science and engineering graduate students in all institutions by field and citizenship status: 1977 & 1985

Field	1977			1985		
	Total	U.S. Citizens	Foreign Citizens	Total	U.S. Citizens	Foreign Citizens
Total, all fields	215,506	178,445	37,061	246,055	179,847	66,209
Total sciences	177,941	154,523	23,418	188,531	146,718	41,814
Physical sciences	22,505	17,809	4,696	26,720	18,222	8,498
Chemistry	13,131	10,544	2,587	15,639	11,521	4,118
Physics	8,649	6,626	2,023	10,271	6,067	4,204
Other	725	639	86	810	634	176
Mathematical sciences	10,365	7,910	2,455	11,975	7,083	4,892
Computer sciences	4,604	3,495	1,109	14,076	8,715	5,362
Environmental sciences	10,556	9,417	1,139	11,557	9,862	1,695
Geosciences	6,495	5,786	709	7,744	6,795	948
Oceanography	1,540	1,390	150	1,686	1,374	312
Atmospheric sciences	807	679	128	872	676	196
Other	1,714	1,562	152	1,255	1,017	239
Life sciences (1)	48,170	42,434	5,736	47,036	38,256	8,780
Biological sciences	38,603	34,755	3,848	37,916	31,450	6,466
Agricultural sciences	9,567	7,679	1,888	9,120	6,806	2,314
Psychology	25,710	24,968	742	26,393	25,163	1,230
Social sciences	56,031	48,490	7,541	50,774	39,417	11,357
Economics	8,377	5,556	2,821	8,982	5,055	3,926
Sociology	6,163	5,466	697	4,708	3,499	1,209
Other social sciences	41,491	37,468	4,023	37,084	30,863	6,222
Total engineering	37,565	23,922	13,643	57,524	33,129	24,395
Aeronautical/astronautical	1,187	711	476	1,995	1,258	737
Chemical	3,873	2,273	1,600	5,556	3,352	2,214
Civil	7,451	5,053	2,398	10,229	5,699	4,530
Electrical	8,528	5,435	3,093	14,868	8,157	6,711
Industrial	3,343	2,100	1,243	4,522	2,689	1,834
Mechanical	4,883	2,991	1,892	8,722	4,771	3,951
Other engineering	8,300	5,359	2,941	11,632	7,203	4,418

(1) Does not include health sciences
SOURCE: National Science Foundation

Table 30. Federal obligations for basic research by field: Fiscal years 1976-86

(Thousands of dollars)

Field	1976	1977	1978	1979	1980	1981
Total, all fields	2,767,454	3,258,640	3,698,604	4,192,665	4,674,156	5,041,295
Total sciences	2,494,655	2,920,957	3,306,043	3,758,007	4,208,928	4,515,277
Physical sciences	721,435	889,994	941,421	1,050,002	1,220,588	1,324,940
Chemistry	168,265	208,695	203,260	224,798	256,922	298,188
Physics	388,440	467,414	518,798	535,624	668,155	735,417
Astronomy	159,960	193,321	209,832	280,643	279,420	274,227
Other	4,770	20,564	9,531	8,937	16,091	17,108
Mathematics/Computer sciences	81,805	83,408	97,737	104,164	116,258	140,360
Mathematics	43,176	52,135	55,871	59,964	66,825	79,174
Computer sciences	26,594	31,018	40,294	42,956	46,215	52,205
Other	12,035	255	1,572	1,244	3,218	8,981
Environmental sciences	294,325	387,454	451,278	457,284	522,360	532,833
Geological sciences	95,705	128,720	145,114	157,603	198,335	194,205
Oceanography	76,580	104,593	120,720	119,110	130,678	143,294
Atmospheric sciences	114,007	143,464	163,275	169,172	179,048	173,829
Other	8,033	10,677	22,169	11,399	14,299	21,505
Life sciences	1,222,015	1,383,365	1,588,390	1,891,777	2,054,425	2,223,848
Biological/Agricultural	818,412	933,574	1,078,679	1,279,290	1,339,434	1,462,372
Biological sciences	(1)	(1)	938,830	1,146,327	1,185,974	1,284,985
Agricultural sciences	(1)	(1)	139,849	132,963	153,460	177,387
Medical sciences	374,381	414,789	467,672	560,110	656,963	706,205
Other	29,222	35,002	42,039	52,377	58,028	55,271
Psychology	45,529	55,717	67,473	75,069	84,206	90,992
Social sciences	86,426	95,513	124,347	129,718	147,180	136,951
Economics	25,634	29,085	33,564	32,676	40,010	34,112
Sociology	16,602	15,936	18,588	18,406	25,377	22,593
Other	44,190	50,492	72,195	78,636	81,793	80,246
Other sciences, n.e.c.	43,120	25,506	35,397	49,993	63,911	65,353

Table 30 cont.

Field	1976	1977	1978	1979	1980	1981
Total engineering	272,799	337,683	392,561	434,658	465,228	526,018
Aeronautical/astronautical	43,838	59,700	97,756	113,604	131,341	146,463
Chemical	18,425	24,034	24,104	24,611	26,148	31,330
Civil	7,786	10,356	10,842	14,164	21,963	23,362
Electrical	53,076	55,139	57,405	62,025	70,586	78,508
Mechanical	20,116	29,628	29,488	35,891	42,227	47,378
Metallurgy & materials	103,273	124,888	134,539	151,117	121,337	138,480
Other	26,282	33,938	38,427	33,246	51,626	60,497

Table 30 cont.

Field	1982	1983	1984	1985	ESTIMATES 1986
Total, all fields	5,481,605	6,260,131	7,067,359	7,818,682	8,145,128
Total sciences	4,871,138	5,570,628	6,222,368	6,931,850	7,200,072
Physical sciences	1,393,844	1,587,183	1,727,982	1,813,988	1,901,747
Chemistry	312,002	362,188	403,367	420,847	425,403
Physics	790,741	855,104	921,430	962,805	1,020,822
Astronomy	271,114	354,466	379,553	400,676	423,509
Other	19,987	15,425	23,632	29,660	31,963
Mathematics/Computer scienc	165,064	208,129	240,806	260,633	298,705
Mathematics	90,862	100,906	113,865	131,118	144,089
Computer sciences	67,448	90,441	104,789	115,881	129,104
Other	6,754	16,782	22,152	13,634	25,512
Environmental sciences	520,049	580,050	656,731	699,675	747,268
Geological sciences	177,487	178,292	198,010	249,988	258,321
Oceanography	154,465	195,615	220,131	219,258	238,967
Atmospheric sciences	163,195	172,633	192,172	209,215	227,170
Other	24,902	33,510	46,418	21,214	22,810
Life sciences	2,526,017	2,891,336	3,287,634	3,807,527	3,902,129
Biological/Agricultural	1,674,752	1,928,774	2,174,668	2,527,803	2,578,273
Biological sciences	1,484,356	1,714,529	1,956,534	2,244,318	2,307,866
Agricultural sciences	190,396	214,245	218,134	283,485	270,407
Medical sciences	793,419	878,922	1,015,300	1,170,618	1,209,716
Other	57,846	83,640	97,666	109,106	114,140
Psychology	89,875	92,927	107,861	130,092	138,458
Social sciences	120,198	137,723	132,581	141,208	131,288
Economics	38,950	40,982	29,671	34,274	34,478
Sociology	18,739	32,772	33,920	32,438	31,348
Other	62,509	63,969	68,990	74,496	65,462
Other sciences, n.e.c.	56,091	73,280	68,773	78,727	80,477

Table 30 cont.

Field	1982	1983	1984	1985	ESTIMATES 1986
Total engineering	610,467	689,503	844,991	886,832	945,056
Aeronautical/astronautical	171,310	191,065	277,887	233,055	258,467
Chemical	35,184	50,402	55,534	74,448	75,256
Civil	31,977	32,426	41,861	43,601	43,862
Electrical	93,625	95,820	130,365	144,890	149,111
Mechanical	53,120	60,722	64,129	88,204	89,568
Metallurgy & materials	155,888	182,892	187,340	211,852	236,393
Other	69,363	76,176	87,875	90,782	92,399

(1) Not separately available
SOURCE: National Science Foundation

Table 31. Federal obligations for basic research by field and selected agency: FY 1986 est.

(Thousands of Dollars)

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total, all fields	8,145,128	432,746	22,079	994,323	945,940	3,357,107	137,589	39,339	850,400	1,255,665
Total sciences	7,200,072	421,752	19,454	645,976	844,282	3,328,278	93,010	30,863	620,121	1,087,046
Physical sciences	1,901,747	35,632	18,050	212,675	743,106	86,772	7,946	3,636	437,718	340,628
Chemistry	425,403	33,453	6,730	73,875	108,510	78,290	6,316	3,065	5,106	109,867
Physics	1,020,822	2,179	10,726	109,559	634,545	8,482	1,630	571	100,025	153,105
Astronomy	423,559	--	589	14,820	--	--	--	--	321,648	74,809
Other	31,963	--	5	14,421	51	--	--	--	10,939	2,847
Mathematics/Computer sciences	298,705	4,839	1,327	130,767	23,604	8,496	1,833	808	20,275	103,668
Mathematics	144,089	4,058	676	55,794	10,238	8,211	407	380	882	60,970
Computer sciences	129,104	781	651	50,790	13,366	285	1,426	428	18,064	42,698
Other	25,512	--	--	24,183	--	--	--	--	1,329	--
Environmental sciences	747,268	5,218	--	142,228	20,410	--	78,131	6,561	136,788	353,237
Geological sciences	258,321	2,995	--	45,790	16,575	--	61,508	333	52,459	75,349
Oceanography	238,967	--	--	55,334	1,908	--	14,492	1,144	6,382	158,419
Atmospheric sciences	227,170	2,223	--	38,802	738	--	--	5,084	62,977	117,251
Other	22,810	--	--	2,302	1,189	--	2,131	--	14,970	2,218
Life sciences	3,902,129	363,253	--	106,749	56,183	3,071,370	5,100	15,180	21,184	221,435
Biological/Agricultural	2,578,273	351,756	--	43,155	55,866	1,845,924	5,100	14,139	12,911	218,347
Biological sciences	2,307,866	87,595	--	43,155	55,866	1,845,422	5,100	13,665	11,935	218,347
Agricultural sciences	270,407	264,161	--	--	--	502	--	474	976	--
Medical sciences	1,209,716	11,497	--	63,594	--	1,119,983	--	1,041	3,001	--
Other	114,140	--	--	--	317	105,463	--	--	5,272	3,088
Psychology	138,458	50	77	37,758	--	84,175	--	25	2,363	11,810
Social sciences	131,288	12,760	--	--	--	37,021	--	4,624	97	35,459
Economics	34,478	9,905	--	--	--	3,212	--	3,912	--	11,776
Sociology	31,348	2,765	--	--	--	24,473	--	356	--	2,963
Other	65,462	90	--	--	--	9,336	--	356	97	20,720
Other sciences, n.e.c.	80,477	--	--	15,799	979	40,444	--	29	1,696	20,809

Table 31 cont.

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total engineering	945,056	10,994	2,625	348,347	101,658	28,829	44,579	8,476	230,279	168,619
Aeronautical/astronautical	258,467	--	--	50,060	--	--	--	--	207,742	665
Chemical	75,256	3,263	120	18,599	20,067	--	--	3,952	662	28,593
Civil	43,862	1,789	--	6,856	427	--	100	3,723	397	30,050
Electrical	149,111	28	902	107,368	990	--	75	2	4,323	35,423
Mechanical	89,568	1,357	--	46,022	15,097	--	--	337	5,232	21,523
Metallurgy & materials	236,393	--	830	112,783	52,306	--	22,777	106	8,685	38,906
Other	92,399	4,557	773	6,659	12,771	28,829	21,627	356	3,238	13,459

NOTE: USDA = Agriculture; DOC = Commerce; DOD = Defense; DOE = Energy; HHS = Health and Human Services; DOI = Interior; EPA = Environmental Protection Agency; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation

SOURCE: National Science Foundation

Table 32. Federal obligations for applied research by field: Fiscal years 1976-86

(Thousands of dollars)

Field	1976	1977	1978	1979	1980	1981
Total, all fields	4,851,878	5,255,475	5,908,154	6,342,340	6,923,222	7,171,485
Total sciences	3,056,022	3,480,241	3,879,544	4,205,368	4,558,319	4,626,049
Physical sciences	537,457	640,177	704,226	742,552	780,024	895,594
Chemistry	160,179	162,027	201,733	218,820	197,614	188,689
Physics	320,823	398,846	423,638	487,117	514,391	610,221
Astronomy	3,133	3,984	3,769	3,786	6,251	6,800
Other	53,322	75,320	75,086	32,829	61,768	89,884
Mathematics/Computer sciences	75,989	112,472	118,543	106,137	124,685	138,565
Mathematics	26,695	44,279	37,481	24,215	24,101	38,552
Computer sciences	46,989	58,337	66,973	63,310	82,378	69,315
Other	2,305	9,856	14,089	18,612	18,206	30,698
Environmental sciences	474,959	518,547	573,288	643,700	738,597	588,247
Geological sciences	131,457	140,710	171,246	201,064	203,420	201,877
Oceanography	87,387	91,301	103,117	101,369	131,446	118,390
Atmospheric sciences	175,305	174,902	155,919	179,544	230,465	199,603
Other	80,810	111,634	143,006	161,723	173,226	68,377
Life sciences	1,427,681	1,624,384	1,838,743	1,956,504	2,137,910	2,211,792
Biological/Agricultural	717,386	843,993	945,339	1,041,032	1,168,124	1,249,396
Biological sciences	(1)	(1)	734,493	772,475	874,378	931,966
Agricultural sciences	(1)	(1)	210,846	268,557	293,746	317,430
Medical sciences	668,554	723,971	819,775	820,505	879,925	903,725
Other	41,741	56,420	73,629	94,967	89,861	58,671
Psychology	98,467	100,484	109,194	122,315	114,803	117,906
Social sciences	306,030	330,612	365,139	397,592	376,631	360,476
Economics	111,943	113,769	129,616	149,239	152,761	172,610
Sociology	37,044	36,221	41,745	46,117	46,058	42,397
Other	157,043	180,622	193,778	202,236	177,812	145,469
Other sciences, n.e.c.	135,439	153,565	170,411	236,568	285,669	313,469

Table 32 cont.

Field	1976	1977	1978	1979	1980	1981
Total engineering	1,795,856	1,775,234	2,028,610	2,136,972	2,364,903	2,545,436
Aeronautical/astronautical	662,375	508,137	550,243	762,433	879,118	867,050
Chemical	69,845	80,767	125,327	89,680	70,187	116,294
Civil	98,119	106,998	131,576	110,842	136,818	135,750
Electrical	244,606	327,588	375,222	355,840	446,556	478,166
Mechanical	165,564	169,545	204,658	159,985	165,751	157,268
Metallurgy & materials	171,636	168,945	151,434	98,229	114,847	117,492
Other	383,711	413,254	490,150	559,963	551,626	673,416

Table 32 cont.

Field	1982	1983	1984	1985	ESTIMATES 1986
Total, all fields	7,540,580	7,993,394	7,911,414	8,311,466	8,309,546
Total sciences	4,764,504	5,165,898	5,132,350	5,569,778	5,570,192
Physical sciences	1,106,537	1,304,256	1,241,032	1,230,059	1,170,042
Chemistry	169,152	158,103	203,044	223,626	227,961
Physics	819,767	999,462	914,999	857,183	808,540
Astronomy	4,670	2,950	2,739	14,067	14,559
Other	112,948	143,741	120,250	135,183	118,982
Mathematics/Computer sciences	185,016	211,287	199,518	316,869	366,305
Mathematics	37,269	32,605	37,118	55,970	60,719
Computer sciences	103,490	124,114	109,739	163,604	177,209
Other	44,257	54,568	52,661	97,295	128,377
Environmental sciences	628,254	671,153	619,182	703,899	710,939
Geological sciences	180,069	155,245	160,980	178,895	173,183
Oceanography	106,813	147,895	143,358	179,250	198,438
Atmospheric sciences	262,634	288,051	241,960	276,767	273,922
Other	78,738	79,962	72,884	68,987	65,396
Life sciences	2,219,482	2,286,595	2,348,314	2,558,694	2,555,503
Biological/Agricultural	1,137,018	1,135,626	1,150,336	1,220,990	1,240,710
Biological sciences	778,436	784,653	856,508	895,142	903,541
Agricultural sciences	358,582	350,973	293,828	325,848	337,169
Medical sciences	979,606	1,048,531	1,097,538	1,229,620	1,192,521
Other	102,858	102,438	100,440	108,084	122,272
Psychology	128,521	147,944	158,811	188,943	187,690
Social sciences	265,741	297,545	303,758	321,203	303,325
Economics	118,152	124,569	117,627	125,298	112,940
Sociology	33,266	35,043	36,307	34,022	36,608
Other	114,323	137,933	149,824	161,883	153,777
Other sciences, n.e.c.	230,953	247,118	261,735	250,111	276,388

Table 32 cont.

Field	1982	1983	1984	1985	ESTIMATES 1986
Total engineering	2,776,076	2,827,496	2,779,064	2,741,688	2,739,354
Aeronautical/astronautical	860,582	950,987	979,291	929,679	1,000,514
Chemical	59,934	94,592	88,916	179,686	168,270
Civil	169,942	156,039	160,950	171,328	155,587
Electrical	518,561	519,124	499,679	481,838	489,012
Mechanical	148,108	205,673	126,341	178,591	174,427
Metallurgy & materials	153,241	149,632	153,740	227,198	227,700
Other	865,708	751,449	770,147	573,368	523,844

(1) Not separately available
SOURCE: National Science Foundation

Table 33. Federal obligations for applied research by field and selected agency: FY 1986 est.

(Thousands of Dollars)

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total, all fields	8,309,546	458,809	304,413	2,364,779	1,080,358	1,833,962	227,534	180,389	1,114,400	77,790
Total sciences	5,570,192	440,683	263,376	1,189,182	718,432	1,804,852	179,669	143,306	323,073	50,794
Physical sciences	1,170,042	25,762	35,091	415,061	538,695	28,411	16,160	16,147	79,925	11,311
Chemistry	227,961	23,765	10,354	93,392	37,337	24,644	13,931	14,865	6,042	2,682
Physics	808,540	1,997	24,584	222,428	498,749	3,767	2,229	1,282	44,410	8,629
Astronomy	14,559	--	153	1,165	--	--	--	--	13,241	--
Other	118,982	--	--	98,076	2,609	--	--	--	16,232	--
Mathematics/ Computer sciences	366,305	9,523	10,180	260,824	19,379	9,653	7,934	4,182	32,625	2,091
Mathematics	60,719	8,720	5,292	6,333	14,719	8,588	1,254	154	10,378	672
Computer sciences	177,209	803	2,553	132,851	4,660	1,065	6,680	4,028	19,082	1,396
Other	128,377	--	2,335	121,640	--	--	--	--	3,165	23
Environmental sciences	710,939	7,176	185,643	161,134	61,634	--	104,756	37,812	144,730	7,144
Geological sciences	173,183	4,792	3,782	35,450	21,795	--	90,374	4,747	8,982	3,211
Oceanography	198,438	--	114,782	42,864	8,842	--	8,544	2,388	18,817	1,828
Atmospheric sciences	273,922	2,384	63,437	68,261	26,572	--	5,838	30,677	75,545	1,183
Other	65,396	--	3,642	14,559	4,425	--	--	--	41,386	922
Life sciences	2,555,503	327,741	17,788	159,094	97,373	1,452,533	46,634	70,380	60,048	11,974
Biological/Agricultural	1,240,710	317,736	16,258	25,040	58,169	570,279	46,634	56,294	10,007	9,667
Biological sciences	903,541	99,333	5,969	25,040	57,811	570,020	44,685	53,992	9,868	9,667
Agricultural sciences	337,169	218,403	10,289	--	358	259	1,949	2,302	139	--
Medical sciences	1,192,521	10,005	1,530	91,339	23,311	845,558	--	14,086	30,688	--
Other	122,272	--	--	42,715	15,893	36,696	--	--	19,353	2,307
Psychology	187,690	133	239	84,927	--	86,425	--	824	1,560	330
Social sciences	303,325	70,348	2,929	4,071	--	92,179	1,700	11,476	3,225	7,446
Economics	112,940	62,979	1,543	1,499	--	4,215	--	11,476	4	3,457
Sociology	36,608	6,561	739	999	--	19,743	700	--	--	863
Other	153,777	808	647	1,573	--	68,221	1,000	--	3,221	3,126
Other sciences, n.e.c.	276,388	--	11,506	104,071	1,351	135,651	--	2,485	960	10,498

Table 33 cont.

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total engineering	2,739,354	18,126	41,037	1,175,597	361,926	29,110	50,350	37,083	791,327	26,996
Aeronautical/ astronautical	1,000,514	--	--	232,705	--	--	--	--	763,662	50
Chemical	168,270	2,505	1,763	31,709	106,175	--	4,908	14,109	145	5,797
Civil	155,587	2,663	6,705	53,595	38,239	--	4,808	15,915	50	5,203
Electrical	489,012	97	11,121	429,981	29,555	--	623	730	2,226	6,589
Mechanical	174,427	2,443	1,872	132,957	13,485	--	471	3,604	2,510	4,234
Metallurgy & materials	227,700	--	10,367	165,108	16,424	--	18,140	2,572	8,981	3,156
Other	523,844	10,418	9,209	129,542	158,048	29,110	21,400	153	13,753	1,967

NOTE: USDA = Agriculture; DOC = Commerce; DOD = Defense; DOE = Energy; HHS = Health and Human Services; DOI = Interior; EPA = Environmental Protection Agency; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation

SOURCE: National Science Foundation

Table 34. Funds for basic research in industry by field of science and engineering: 1973-83

(Dollars in millions)

Field	1973	1974	1975	1976	1977	1979	1981	1983
Total, all fields	631	699	730	819	911	1,158	1,614	2,104
Total sciences	446	521	539	615	678	866	1,156	1,422
Physical sciences	276	319	320	360	405	527	746	902
Chemistry	193	229	228	253	285	381	485	555
Other physical sciences	83	90	92	107	120	146	261	347
Mathematics	14	13	14	18	19	20	26	27
Environmental sciences	7	10	15	17	19	13	18	29
Geological sciences	3	5	5	7	7	6	6	13
Atmospheric sciences	2	3	6	6	5	5	12	16
Oceanography	1	1	3	4	7	2	0	0
Life sciences	102	119	122	134	156	177	208	276
Biological sciences	77	83	85	102	128	136	157	241
Clinical medical sciences	25	36	37	32	28	40	51	35
Other sciences	47	60	67	85	78	128	158	188
Total engineering	185	178	191	204	233	292	458	682

NOTE: Data not collected for 1978, 1980, and 1982.
SOURCE: National Science Foundation

Table 35. Funds for basic research in industry by type of industry and field: 1983
(Dollars in millions)

Industry	SIC code	Total	Total sciences	Physical sciences	Mathematics	Environmental sciences	Life sciences	Other sciences	Engineering
Total	--	2,104	1,422	902	27	29	276	188	682
Food and kindred products	20	54	46	18	(1)	0	21	7	(1)
Textiles and apparel	22,23	(1)	0	(1)	0	0	0	0	0
Lumber, wood products, furniture	24,25	(1)	0	0	0	0	0	(1)	(1)
Paper and allied products	26	(1)	31	24	0	0	(1)	7	(1)
Chemicals and allied products	28	(1)	572	349	(1)	(1)	223	(1)	30
Industrial chemicals	281-82,286	(1)	349	186	(1)	(1)	156	7	20
Drugs and medicines	283	(1)	63	(1)	0	0	63	(1)	(1)
Other chemicals	284-85,287-89	(1)	5	(1)	0	0	5	(1)	(1)
Petroleum refining and and related industries	29	(1)	17	(1)	0	(1)	17	0	(1)
Rubber products	30	(1)	0	(1)	0	0	0	0	(1)
Stone, clay, and glass products	32	(1)	53	40	0	11	0	2	(1)
Primary metals	33	37	0	(1)	0	0	0	(1)	(1)
Ferrous metals and products	331-32,3398-99	(1)	8	(1)	0	0	0	8	(1)
Nonferrous metals and products	333-36	(1)	0	(1)	0	0	0	(1)	12
Fabricated metal products	34	6	0	(1)	0	0	0	0	(1)
Machinery	35	165	147	120	(1)	0	0	27	(1)
Office, computing, accounting machines	357	(1)	8	(1)	(1)	0	0	8	(1)
Other machinery, except electrical	351-56,358-59	(1)	19	(1)	0	0	0	19	(1)
Electrical equipment	36	397	114	100	14	0	(1)	(1)	193
Radio and TV receiving	365	(1)	0	0	0	0	0	0	(1)
Communication	366	250	88	74	14	0	0	(1)	(1)
Electronic components	367	(1)	15	15	0	0	0	(1)	26
Other electrical	361-64,369	(1)	0	(1)	0	0	(1)	0	36
Motor vehicles and equipment	371	(1)	5	5	0	(1)	0	(1)	10
Other transportation equipment	373-75,379	(1)	0	(1)	0	0	(1)	0	5
Aircraft and missiles	372,376	136	0	(1)	0	0	0	(1)	112
Professional and scientific instruments	38	(1)	0	(1)	0	0	(1)	0	18
Other manufacturing industries	21,27,31,39	(1)	0	(1)	0	0	0	(1)	0
Nonmanufacturing industries	07-17,41-67,737, 739, 807, 891	(1)	130	124	0	(1)	(1)	6	95

(1) Not separately available but included in total
SOURCE: National Science Foundation

Table 36. Federal obligations to universities and colleges for research and development by field and selected agency: Fiscal year 1985

(Dollars in thousands)

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total, all fields	6,379,151	302,719	77,585	1,040,754	373,071	3,098,649	32,876	61,877	237,260	1,011,133
Total sciences	5,303,601	292,749	75,921	317,132	290,287	3,067,503	23,099	55,990	185,323	861,212
Physical sciences	789,184	15,589	4,110	79,096	207,386	83,651	2,524	2,514	87,613	306,451
Chemistry	256,156	15,589	915	25,544	25,262	81,116	2,524	1,388	4,128	99,585
Physics	397,061	0	1,846	48,325	181,385	2,535	0	411	23,352	139,089
Astronomy	78,654	0	1,349	2,042	0	0	0	0	48,635	26,628
Other	57,313	0	0	3,185	739	0	0	715	11,525	41,149
Mathematical sciences	94,680	3,774	126	25,273	11,460	4,818	0	110	2,533	46,586
Computer sciences	79,637	378	989	15,668	7,969	0	109	242	6,586	45,925
Environmental sciences	451,303	2,057	64,970	67,644	21,682	0	12,372	24,248	64,085	190,433
Geological sciences	116,592	344	0	5,123	9,212	0	4,907	4,075	19,080	70,280
Oceanography	138,704	0	44,323	37,529	7,061	0	566	45	3,653	45,527
Atmospheric sciences	135,562	1,713	20,531	24,024	3,671	0	2,097	187	35,712	47,506
Other	60,445	0	116	968	1,738	0	4,802	19,941	5,640	27,120
Life sciences	3,365,004	242,844	292	76,913	39,630	2,708,110	7,391	21,622	20,001	172,071
Biological sciences	1,851,142	89,400	106	20,942	27,297	1,512,550	4,218	16,649	10,065	169,915
Agricultural sciences	181,443	139,732	186	1,244	298	543	3,173	484	932	0
Medical sciences	1,288,203	13,712	0	54,295	7,730	1,189,299	0	1,456	3,111	337
Other	44,216	0	0	432	4,305	5,718	0	3,033	5,893	1,819
Psychology	133,786	0	20	10,767	0	105,115	13	275	2,151	12,155
Social sciences	175,909	28,107	4,946	2,466	0	58,945	353	1,065	84	31 066
Economics	45,292	21,037	4,946	680	0	4,506	25	533	3	9,372
Sociology	34,887	7,070	0	12	0	21,789	238	0	0	4,255
Other	95,730	0	0	1,774	0	32,650	90	532	81	17,439
Other sciences, n.e.c.	214,098	0	468	39,305	2,160	106,864	337	5,914	2,270	56,525

Table 36 cont.

Field	Federal Agency									
	Total	USDA	DOC	DOD	DOE	HHS	DOI	EPA	NASA	NSF
Total engineering	1,075,550	9,970	1,664	723,622	82,784	31,146	9,777	5,887	51,937	149,921
Aeronautical/astronautical	54,668	0	0	31,389	0	0	0	55	22,401	823
Chemical	68,602	0	250	2,865	37,291	0	0	520	876	26,800
Civil	45,368	645	237	5,939	365	0	218	2,966	374	31,259
Electrical	231,457	0	152	193,307	298	0	46	99	6,149	31,406
Mechanical	53,214	0	275	18,474	8,685	0	0	0	6,523	18,741
Metallurgy & materials	80,416	0	381	19,803	15,885	0	9,513	0	7,656	27,178
Other	541,825	9,325	369	451,845	20,260	31,146	0	2,247	7,958	13,714

NOTE: USDA = Agriculture; DOC = Commerce; DOD = Defense; DOE = Energy; HHS = Health and Human Services; DOI = Interior; EPA = Environmental Protection Agency; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation

SOURCE: National Science Foundation

Table 37. R&D expenditures at universities and colleges by field: Fiscal years 1975-85 (Dollars in thousands)

Field	1975	1976	1977	1978 (1)	1979	1980
Total, all fields	3,408,691	3,729,007	4,066,953	4,624,673	5,361,408	6,060,288
Total sciences	3,027,779	3,297,280	3,568,480	4,023,611	4,593,001	5,195,391
Physical sciences	350,278	379,379	423,457	469,399	601,904	677,386
Chemistry	120,710	140,142	159,353	183,131	206,421	244,044
Physics	173,510	183,050	201,655	235,099	292,033	322,249
Astronomy	26,607	26,294	32,361	36,782	48,459	58,741
Other	29,451	29,893	30,088	41,387	54,991	52,352
Mathematical sciences	39,713	42,491	52,312	58,756	78,477	78,646
Computer sciences	45,593	44,503	55,563	67,422	97,921	114,220
Environmental sciences (2)	255,060	288,531	319,398	379,391	452,915	509,105
Geological sciences	--	--	--	--	--	188,257
Oceanography	--	--	--	--	--	171,681
Atmospheric sciences	--	--	--	--	--	67,460
Other	--	--	--	--	--	81,707
Life sciences	1,900,837	2,101,695	2,258,806	2,538,004	2,832,523	3,216,876
Biological sciences	630,166	710,724	772,290	808,500	914,806	1,030,205
Agricultural sciences	383,841	412,867	460,647	521,745	602,485	679,304
Medical sciences	811,383	897,376	950,907	1,128,652	1,237,556	1,414,352
Other	75,447	80,728	74,962	79,107	77,676	93,015
Psychology	80,327	77,888	85,133	89,664	100,531	111,329
Social sciences	256,116	262,261	268,087	277,497	295,138	341,678
Economics	55,949	65,447	72,124	79,129	83,089	90,195
Sociology	68,758	66,246	61,939	66,900	74,641	88,594
Other	131,409	130,568	134,024	131,468	137,408	162,889
Other sciences, n.e.c.	99,855	100,532	105,724	116,478	133,592	146,151
Total engineering (2)	380,912	431,727	498,473	601,062	768,407	864,897
Aeronautical/astronautical	--	--	--	--	--	46,285
Chemical	--	--	--	--	--	67,557
Civil	--	--	--	--	--	88,644
Electrical	--	--	--	--	--	184,026
Mechanical	--	--	--	--	--	146,151
Other	--	--	--	--	--	332,234

Table 37 cont.

Field	1981	1982	1983	1984	1985
Total, all fields	6,818,595	7,276,068	7,806,782	8,502,954	9,503,725
Total sciences	5,857,617	6,250,225	6,695,454	7,296,510	8,120,510
Physical sciences	766,266	824,339	898,889	996,898	1,136,644
Chemistry	285,061	309,371	336,025	371,182	414,529
Physics	357,165	366,234	414,447	470,760	549,895
Astronomy	67,391	73,296	74,236	80,429	91,161
Other	56,649	75,438	74,181	74,528	81,059
Mathematical sciences	89,078	98,882	108,419	124,382	129,366
Computer sciences	133,100	149,497	175,469	222,671	277,742
Environmental sciences (2)	550,301	559,337	620,492	649,505	706,974
Geological sciences	190,338	196,218	216,858	224,833	252,796
Oceanography	187,667	197,926	224,228	238,119	259,718
Atmospheric sciences	78,271	85,458	97,675	102,891	109,146
Other	94,025	79,735	81,731	83,662	85,314
Life sciences	3,673,142	3,972,387	4,233,036	4,607,293	5,138,463
Biological sciences	1,187,930	1,288,303	1,409,633	1,560,417	1,720,421
Agricultural sciences	773,059	844,722	895,705	928,833	1,000,430
Medical sciences	1,599,406	1,717,296	1,799,183	1,976,413	2,245,979
Other	112,747	122,066	128,515	141,630	171,632
Psychology	128,735	132,770	138,951	147,072	161,996
Social sciences	372,435	360,581	357,652	371,456	387,444
Economics	99,749	95,869	97,512	108,866	116,414
Sociology	95,039	80,672	78,948	74,597	77,554
Other	177,647	184,040	181,192	187,993	193,476
Other sciences, n.e.c.	144,560	152,432	162,546	177,233	181,881
Total engineering (2)	960,978	1,025,843	1,111,328	1,206,444	1,383,216
Aeronautical/astronautical	45,522	60,271	65,026	66,299	75,428
Chemical	83,213	83,555	90,821	96,240	108,987
Civil	108,236	108,777	109,957	133,582	146,046
Electrical	193,140	223,928	259,749	292,268	337,200
Mechanical	149,196	142,246	149,634	176,041	203,661
Other	381,671	407,066	436,141	442,013	511,893

(1) Estimated, based on data collected from doctorate-granting institutions only.

(2) Detail not separately available prior to 1980.

SOURCE: National Science Foundation

Table 38. Federally financed R&D expenditures at universities and colleges by field: Fiscal years 1975-85
(Dollars in thousands)

Field	1975	1976	1977	1978 (1)	1979	1980
Total, all fields	2,288,070	2,511,867	2,726,126	3,058,734	3,595,271	4,096,029
Total sciences	2,028,717	2,221,349	2,389,401	2,651,247	3,068,907	3,500,622
Physical sciences	284,992	305,407	338,782	392,346	490,680	554,811
Chemistry	92,716	107,867	121,453	138,001	156,516	189,419
Physics	149,862	156,102	171,910	199,161	252,518	279,890
Astronomy	19,522	18,351	23,230	26,349	36,245	44,441
Other	22,892	23,087	22,189	28,835	45,401	41,061
Mathematical sciences	31,224	32,882	40,638	44,130	60,431	61,089
Computer sciences	33,875	32,925	37,546	41,214	69,192	76,982
Environmental sciences (2)	180,643	211,822	238,591	275,080	329,154	372,533
Geological sciences	--	--	--	--	--	131,272
Oceanography	--	--	--	--	--	132,726
Atmospheric sciences	--	--	--	--	--	55,524
Other	--	--	--	--	--	53,011
Life sciences	1,237,878	1,380,846	1,473,984	1,626,413	1,818,779	2,093,963
Biological sciences	457,093	522,172	575,129	590,560	664,675	763,075
Agricultural sciences	112,864	122,538	132,772	155,349	184,676	211,285
Medical sciences	613,716	677,509	712,327	824,808	914,905	1,056,561
Other	54,205	58,627	53,756	55,696	54,523	63,042
Psychology	61,686	59,367	63,648	63,996	72,257	81,193
Social sciences	141,333	138,255	138,205	140,445	155,074	181,627
Economics	26,968	29,132	31,595	37,103	40,026	43,430
Sociology	45,041	41,115	37,854	40,597	47,144	57,140
Other	69,324	68,008	68,756	62,745	67,904	81,057
Other sciences, n.e.c.	57,086	59,845	58,007	67,623	73,340	78,424
Total engineering (2)	259,353	290,518	336,725	407,487	526,364	595,407
Aeronautical/astronautical	--	--	--	--	--	35,610
Chemical	--	--	--	--	--	46,057
Civil	--	--	--	--	--	58,920
Electrical	--	--	--	--	--	139,597
Mechanical	--	--	--	--	--	99,759
Other	--	--	--	--	--	215,464

Table 38 cont.

Field	1981	1982	1983	1984	1985
Total, all fields	4,561,812	4,752,219	4,959,699	5,388,012	6,002,558
Total sciences	3,899,309	4,054,033	4,221,770	4,609,385	5,145,027
Physical sciences	619,024	649,988	698,510	779,336	883,332
Chemistry	216,783	231,108	248,554	278,949	308,425
Physics	308,740	306,236	340,016	387,865	454,683
Astronomy	47,876	51,728	50,423	53,167	60,171
Other	45,625	60,916	59,517	59,354	60,054
Mathematical sciences	67,907	72,096	76,696	91,282	96,112
Computer sciences	93,521	106,994	127,773	161,582	193,136
Environmental sciences (2)	392,693	392,223	427,925	451,522	480,679
Geological sciences	128,382	127,497	136,325	139,575	155,589
Oceanography	146,046	153,709	171,487	183,522	191,759
Atmospheric sciences	58,698	68,306	75,952	82,116	86,362
Other	59,567	42,711	44,161	46,309	46,969
Life sciences	2,364,209	2,494,386	2,565,347	2,793,906	3,138,682
Biological sciences	866,508	921,966	984,299	1,086,583	1,197,986
Agricultural sciences	234,026	255,159	259,841	269,525	289,717
Medical sciences	1,187,339	1,238,798	1,243,284	1,349,890	1,548,247
Other	76,336	78,463	77,923	87,908	102,732
Psychology	92,624	89,270	90,718	98,447	107,560
Social sciences	187,623	162,506	148,991	147,108	155,714
Economics	44,532	41,226	37,639	43,068	44,236
Sociology	56,500	46,127	42,792	39,221	41,236
Other	86,591	75,153	68,560	64,819	70,242
Other sciences, n.e.c.	81,708	86,570	85,810	86,202	89,812
Total engineering (2)	662,503	698,186	737,929	778,628	857,530
Aeronautical/astronautical	35,302	47,934	51,946	52,169	59,768
Chemical	55,168	49,622	52,107	54,433	57,935
Civil	67,951	59,046	58,109	74,738	80,329
Electrical	145,441	173,853	192,370	208,010	229,852
Mechanical	103,022	97,658	101,185	117,338	131,375
Other	255,619	270,073	282,212	271,939	298,271

(1) Estimated, based on data collected from doctorate-granting institutions only.
(2) Detail not separately available prior to 1980.

SOURCE: National Science Foundation

Table 39. R&D expenditures in engineering subfields at universities and colleges: Fiscal year 1985
(Dollars in thousands)

Institutional ranking	Field of engineering						
	Total	Aeronautical/ Astronautical	Chemical	Civil	Electrical	Mechanical	Other
Total, all institutions	1,383,216	75,248	108,987	146,046	337,200	203,661	511,893
1. Johns Hopkins University	116,825	11,842	2,324	1,262	36,581	23,850	40,966
2. Mass Inst of Technology	103,810	10,747	6,474	7,644	30,320	14,885	33,740
3. Georgia Inst of Technology	65,584	3,940	3,405	3,354	30,586	10,297	14,002
4. Stanford University	58,284	3,807	2,937	3,028	26,659	5,225	16,628
5. Pennsylvania State Univ	39,866	532	1,657	488	2,015	2,909	32,265
6. Univ of Illinois at Urbana	36,918	159	1,357	3,692	6,044	3,669	21,997
7. Univ of Cal at Berkeley	31,918	120	1,270	4,855	16,959	2,979	5,735
8. Cornell University	30,599	2,093	1,343	3,745	6,834	1,459	15,125
9. Purdue University	26,042	1,616	1,294	3,337	5,868	4,454	9,473
10. Texas A&M University	24,477	1,104	911	1,481	957	1,587	18,437
Total, 1st 10 Insts.	534,323	35,960	22,972	32,886	162,823	71,314	208,368
11. University of Michigan	23,020	1,201	1,397	3,638	4,673	4,168	7,943
12. Univ of Texas at Austin	22,139	2,590	1,949	5,526	4,674	4,354	3,046
13. University of New Mexico	22,105	0	1,043	18,735	1,401	543	383
14. Univ of Wisc at Madison	21,823	0	2,494	826	3,924	1,783	12,796
15. Ohio State University	19,773	585	330	645	5,092	2,427	10,694
16. Univ of Cal at Los Angeles	18,500	0	1,003	912	8,415	5,497	2,673
17. University of Minnesota	18,061	1,156	4,191	4,504	1,566	2,615	4,029
18. VA Polytech Inst & St Univ	17,552	1,255	835	2,357	2,214	4,943	5,948
19. University of Florida	17,405	1,191	669	3,841	2,097	1,665	7,942
20. Univ of Md at College Park	16,967	1,657	2,487	2,363	5,766	2,880	1,814
Total, 1st 20 Insts.	731,668	45,595	39,370	76,233	202,645	102,189	265,636
21. University of Rochester	15,520	0	266	0	1,195	10,099	3,960
22. University of Dayton	15,194	2,160	0	220	161	2,292	10,361
23. Carnegie-Mellon University	15,066	0	1,130	1,209	6,132	1,567	5,028
24. New Mexico St Univ	14,590	394	52	117	13,160	651	216
25. Rensselaer Polytech Inst	14,553	0	901	683	2,678	3,047	7,244
26. Iowa St Univ of Sci & Tech	13,880	539	927	2,697	1,609	2,691	5,417
27. California Inst of Tech	13,859	984	1,051	1,086	3,478	2,905	4,355
28. Case Western Reserve Univ	12,945	0	701	594	795	1,576	9,279
29. Univ of Southern Cal	12,877	1,651	274	816	6,190	438	3,508
30. NC State Univ at Raleigh	12,665	0	757	837	2,023	1,716	7,332
Total, 1st 30 Insts.	872,817	51,323	45,429	84,492	240,066	129,171	322,336

Table 39 cont.

Institutional ranking	Field of engineering						
	Total	Aeronautical/ Astronautical	Chemical	Civil	Electrical	Mechanical	Other
31. University of Washington	11,894	2,226	2,170	2,950	1,133	1,411	2,004
32. Lehigh University	11,620	0	1,682	2,261	1,309	3,124	3,244
33. Arizona State University	10,906	0	972	688	2,383	2,001	4,862
34. Syracuse University	10,198	0	1,523	1,102	1,940	583	5,050
35. University of Virginia	9,912	0	339	168	1,252	2,977	5,176
36. Oklahoma State Univ	9,746	428	724	1,092	1,707	1,373	4,422
37. Princeton University	9,623	5,205	1,660	1,413	1,286	0	59
38. University of Kentucky	9,316	0	730	1,124	1,913	1,423	4,126
39. Northwestern University	9,230	0	1,157	1,950	1,046	661	4,416
40. Louisiana State Univ	8,983	0	2,778	1,130	1,124	1,012	2,939
Total, 1st 40 Insts.	974,245	59,182	59,164	98,370	255,159	143,736	358,634
41. University of Utah	8,586	0	322	332	1,116	939	5,877
42. Columbia Univ, Main Div	8,578	0	2,028	469	2,368	334	3,379
43. Woods Hole Ocngraphic Inst	8,290	591	631	652	2,106	1,699	2,611
44. University of Delaware	8,275	0	1,883	454	2,483	716	2,739
45. Univ of Missouri at Rolla	8,138	5	199	659	887	785	5,603
46. Michigan State Univ	7,994	0	76	2	6	150	7,760
47. Drexel University	7,875	0	299	934	3,343	1,614	1,685
48. University of Arizona	7,864	1,247	631	588	2,155	0	3,243
49. University of Connecticut	7,851	0	1,413	393	864	1,413	3,768
50. University of Denver	7,826	0	965	0	3,382	2,438	1,041
Total, 1st 50 Insts.	1,055,522	61,025	67,611	102,853	273,869	153,824	396,340
51. Colorado State University	7,679	0	288	2,147	1,179	614	3,451
52. Univ of Pennsylvania	7,655	0	779	268	2,310	915	3,383
53. Clemson University	7,255	0	465	998	1,692	975	3,125
54. Auburn University	7,175	398	2,038	439	1,100	876	2,324
55. Univ of Cincinnati	6,819	2,187	747	489	2,054	231	1,111
56. Michigan Tech University	6,360	0	761	1,267	115	1,370	2,847
57. University of Oklahoma	6,212	1,136	1,545	1,897	434	0	1,200
58. Texas Tech University	6,011	262	452	671	1,047	843	2,736
59. Univ of Central Florida	5,624	0	0	642	406	769	3,807
60. Mississippi State Univ	5,553	878	80	129	817	353	3,296
Total, 1st 60 Insts.	1,121,865	65,886	74,766	111,800	285,023	160,770	423,620

Table 39 cont.

Institutional ranking	Field of engineering						
	Total	Aeronautical/ Astronautical	Chemical	Civil	Electrical	Mechanical	Other
61. University of Rhode Island	5,443	236	403	610	949	767	2,478
62. Univ of Mass at Amherst	5,422	0	1,024	739	2,004	1,150	505
63. Rutgers, The St Univ of NJ	5,278	0	573	46	256	634	3,769
64. University of Colorado	5,127	277	768	1,222	2,439	406	15
65. University of Iowa	5,066	236	371	567	895	717	2,280
66. Univ of Houston at Univ Pk	4,872	147	1,000	937	752	1,267	769
67. Yale University	4,777	0	1,195	0	853	404	2,325
68. Brown University	4,724	337	363	373	1,209	953	1,489
69. Univ of Missouri, Sys Off	4,589	0	0	0	0	0	4,589
70. University of Pittsburgh	4,498	0	1,280	434	351	175	2,258
Total, 1st 70 Insts.	1,171,661	67,119	81,743	116,728	294,731	167,243	444,097
71. Univ of TN at Knoxville	4,467	0	489	604	1,432	420	1,522
72. George Washington Univ	4,418	1,801	0	784	397	78	1,358
73. N Mex Inst Mining & Tech	4,360	0	0	0	0	0	4,360
74. Stevens Inst of Technology	4,308	0	0	0	134	310	3,864
75. Utah State University	4,262	0	0	1,194	984	111	1,973
76. Worcester Poly Institute	4,228	0	784	80	270	2,937	157
77. Un of Ark at Fayetteville	4,165	0	1,125	438	823	585	1,194
78. Oregon State Univ	4,159	0	50	1,330	518	1,507	754
79. SUNY at Buffalo	4,035	0	422	793	1,424	994	402
80. Un of Missouri at Columbia	3,986	0	69	477	314	391	2,735
, Total, 1st 80 Insts.	1,214,049	68,920	84,682	122,428	301,027	174,576	462,416
81. Polytechnic University	3,910	0	274	156	2,851	60	569
82. Kans St Univ, Ag & App Sci	3,855	0	375	134	255	266	2,825
83. Univ of Cal at Davis	3,678	0	287	614	901	1,229	647
84. Colorado School of Mines	3,508	0	709	0	0	123	2,676
85. Illinois Inst of Tech	3,288	0	955	93	410	1,015	815
86. Ohio University	3,189	0	647	164	1,861	170	347
87. U of Alabama at Huntsville	3,120	0	457	195	1,036	1,066	366
88. US Naval Postgrad School	3,101	694	0	0	1,660	747	0
89. Brigham Young University	3,019	0	1,059	1,246	334	243	137
90. Un of Cal at Santa Barbara	2,974	0	681	0	1,955	304	34
Total, 1st 90 Insts.	1,247,691	69,614	90,126	125,030	312,290	179,799	470,832

Table 39 cont.

Institutional ranking	Field of engineering						
	Total	Aeronautical/ Astronautical	Chemical	Civil	Electrical	Mechanical	Other
91. University of Notre Dame	2,833	406	1,376	496	340	0	215
92. Univ of Ill at Chicago	2,789	0	459	510	776	297	747
93. Vanderbilt University	2,750	0	183	612	672	1,278	5
94. SUNY at Stony Brook	2,725	0	0	0	312	1,003	1,410
95. University of Kansas	2,682	135	198	300	495	381	1,173
96. Northeastern University	2,669	0	44	173	2,259	143	50
97. Rice University	2,668	0	817	309	771	380	391
98. West Virginia University	2,626	0	242	75	51	98	2,160
99. Inst of Paper Chemistry	2,560	0	1,347	0	0	774	439
100. Clarkson University	2,550	0	774	646	704	426	0
Total, 1st 100 Insts.	1,274,543	70,155	95,566	128,151	318,670	184,579	477,422

SOURCE: National Science Foundation